

General Specifications

Item	Description	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	REMARKS
1	All equipment and components must be of the required level of technology, new, compliant with the requested specifications, responding to current quality standards in international markets, manufactured by reputable and consolidated international brands, <u>reliable and fully adequate for the intended purpose.</u>		
2	All equipment markings, user manuals and electronic copies must be in English.		
3	All equipment shall conform and operate on the standard electric supply in the Philippines (220Vac, 50/60 Hz power, type A & B power sockets)		
4	All equipment must be able to operate in the environmental conditions of the different locations in The Philippines, especially considering humid environments at temperatures <u>ranging from 8°C to 45°C, dusty and moisty environments and frequently salty air.</u>		
5	All connections between components shall be ready to operate, once installation is finalized.		
6	All necessary cables, adaptors and connections must be included and clearly marked, in order to facilitate rapid and accurate assembly.		
7	Bidder should execute an Undertaking that the spare parts are available nationwide for a minimum period of five (5) years and that the original brand of the spare parts are made available to DepEd.		
8	Imported products should pass international quality control product standards and have international quality control product markings such as CE, ISO, ASTM, ASQC, AFCIQ, ASQ, DGQ, EOQC, IQA, and the likes, while locally made products (Philippine-made) should pass the local quality control product standards and bear the PS mark.		
9	The items must be branded and permanently marked on the items, good quality, must be free from toxic materials, and must be properly packed		
10	The equipment and tools can be utilized by male and female learners.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
MARKET ITEMS				
LOT 2: CHEMICALS (MI-LOT 2)				
1	Benedict's Solution, 100ml/bottle	Functional Specifications: Used to test for levels/ traces of simple reducing sugars		
		Performance Specifications: Must be able to test for the presence (levels of traces) of reducing sugars such as glucose.		
		A positive test with Benedict's reagent is shown by a color change from clear blue to:		
		a) blue solution - 0 g % (no trace of simple reducing sugar)		
		b) green precipitate- 0.5 to 1.0 g % (traces of simple reducing sugar)		
		c) yellow precipitate- 1.0-1.5 g % (low simple reducing sugar)		
		d) orange precipitate - 1.5 to 2.0 g % (moderate simple reducing sugar)		
		e) brick-red precipitate - greater than 2.0 g % (high presence of simple reducing sugar)		
		Design Specifications:		
		1. Features an aqua blue liquid		
		2. Chemical Formula: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} + \text{Na}_2\text{CO}_3 + \text{Na}_2\text{C}_6\text{H}_5\text{O}_7$		
		3. Capacity: 100 mL		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		

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		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
2	Boric Acid, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify boron or its specific unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as a substrate in Flame test to visually identify boron, or its ion based on the characteristic color it emits on the Bunsen flame. Boric acid emits a bright green color which indicates the presence of boron or its ion		
		Design Specifications:		
		1. Features a colorless or white, odorless and crystalline solid		
		2. Chemical formula : H3BO3		
		3. Mass/bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS(Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
3	Bromothymol Blue	Functional Specifications: Used as an indicator of dissolved Carbon dioxide.		
		Performance Specifications: Must be able to show the effect of changes in abiotic factors on the ecosystem.		
		Design Specifications:		
		1. Color: Dark Blue/blue-black		
		2. Concentration range : 0.01% - 0.04% aqueous solution (as indicated in the product label)		
		3. Capacity: 100 mL		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with the chemical name, concentration, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		

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		7. Must be branded and brand new. The brand shall be printed on the product label.		
4	Calcium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify calcium or its ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Used as a substrate in Flame test to visually identify calcium element, or an unknown metalloid ion based on the characteristic color the chemical emits on the Bunsen flame. Calcium chloride emits an orange red/yellowish red color which indicates the presence of the calcium ion		
		Design Specifications:		
		1. Features a white powder, crystals or granules		
		2. Chemical Formula : CaCl ₂		
		3. Mass per bottle : 100 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and with SDS (Safety Data Sheet)		
		9. With brand printed permanently on the product label		
		10. Must be brand new		
5	Copper Sulfate, CuSO₄, 100 grams / bottle	Functional Specifications: Used as : a) an oxidizing agent or oxidant and is reduced in a spontaneous [chemical (redox) reaction decreasing its oxidation state with metals above it, like zinc, in the Activity Series of Metals]		
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame .		
		Performance Specifications: Must be able to		
		a) oxidize the other reactant of a spontaneous redox reaction by gaining electrons reducing its oxidation state with metals above it, like zinc, in the Activity Series of Metals, resulting in copper in the free state and the salt of the metal being displaced.		
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame. Copper sulfate emits blue green color on the Bunsen flame.		
		Design Specifications:		
		1. Features a blue, odorless crystalline solid		
		2. Chemical formula : CuSO ₄		
		3. Mass per bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		

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		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. With brand printed permanently on the product label		
		10. Must be brand new		
6	Gentian Violet, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.		
		Performance Specifications: Must be able to enhance animal cell image as to presence or absence of some organelles.		
		Design Specifications:		
		1. Capacity (minimum): 100 mL per bottle		
		2. Color: Blue-violet/dark purple		
		3. With Safety Data Sheet		
		4. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		
		6. Must be branded and brand new. The brand shall be printed on the product label.		
7	Iodine Solution, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.		
		Performance Specifications: Must be able to enhance plant cells as to presence or absence of some organelles.		
		Design Specifications:		
		1. Capacity: 100 mL per bottle		
		2. Color: Light orange-brown		
		3. Alternate name: Lugol's Solution		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		
		7. Must be branded and brand new. The brand shall be printed on the product label.		
8	Magnesium Ribbon, 25 grams, 1 roll	Functional Specifications: Used as a reactant and is ignited over a flame to demonstrate a highly exothermic combustion reaction		
		Performance Specifications: Must be able to produce a highly exothermic combustion reaction resulting in a blinding white light and intense heat when ignited over a flame. A white powdery solid, magnesium oxide is produced		
		Design Specifications:		
		1. Features a relatively soft, lightweight solid metal		
		2. Color : Shiny silvery gray--white		
		3. Chemical formula : Mg		
		4. Form : Solid (ribbon)		
		5. Mass per roll : 25-27 g		
		6. Number of roll : 1 roll		
		7. Comes in original plastic packing		

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		8. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		9. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		10. Expiration dates should be at least two years		
		11. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		12. Comes with a brand printed permanently on the product label		
		13. Must be brand new		
9	Manganese Dioxide, 50 grams / bottle	Functional Specifications: Used as a catalyst to demonstrate decomposition reaction of hydrogen peroxide and observe its effect on the rate of chemical reaction		
		Performance Specifications: Must be used as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water and to demonstrate its effect on the rate of chemical reaction		
		Design Specifications:		
		1. Form: Solid powder		
		2. Color : Brown-black solid/ blackish or brown solid		
		3. Chemical formula : MnO ₂		
		4. Mass per bottle : 50 g		
		5. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		7. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		8. Expiration dates should be at least two years		
		9. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		10. Comes with a brand printed permanently on the product label		
		11. Must be brand new		
10	Microscope's Immersion Oil, 100mL/bot	Functional Specifications: Used to increase the resolving power of the microscope's 100x objective.		
		Performance Specifications: Must be able to give a clear and very distinct image of the specimen.		
		Design Specifications:		
		1. Capacity: 100 mL/bottle		
		2. Non-drying, clear and transparent		
		3. With Refractive index: 1.515 - 1.518 (as indicated in SDS, product label or certificate)		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		

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		7. Must be branded and brand new. The brand shall be printed on the product label.		
11	Phenolphthalein, 100 grams/bottle	Functional Specifications: Used as an indicator to effect a color change to distinguish an acid from a base and in performing acid base titration		
		Performance Specifications: Must be used as an indicator to distinguish and acid from a base and in performing acidbase titration, as it indicates the change in pH by changing its color , the results vary:		
		a) For a base, it gives a pink color		
		b) For an acid, it is colorless		
		Design Specifications:		
		1. Features a white to cream, odorless solid powder		
		2. Chemical formula : C ₂₀ H ₁₄ O ₄		
		3. Mass per bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7.Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
12	Potassium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify a specific element or an unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as :		
		a) a substrate in Flame test to visually identify potassium element, or its ion based on the characteristic color it emits on the Bunsen flame.		
		Potassium chloride emits a light lilac color which indicates the presence of the potassium ion		
		b) as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water to demonstrate the effect of catalyst on the rate of chemical reaction		
		Design Specifications:		
		1. Features a white crystalline solid		
		2. Chemical formula : KCl		
		3. Mass per bottle: 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		

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		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
13	Potassium Iodide, 100 grams / bottle	Functional Specifications: Used as : a) a substrate in Flame test to visually identify potassium or its ion based on the characteristic color it emits on the Bunsen flame		
		b) a catalyst to demonstrate decomposition reaction of hydrogen peroxide to form water and oxygen		
		Performance Specifications: Must be : a) used as a substrate in Flame test to visually identify potassium , or its ion based on the characteristic color the chemical emits on the Bunsen flame. Potassium iodide emits a lilac color which indicates the presence of the potassium ion		
		b) able to undergo a spontaneous decomposition of hydrogen peroxide into bubbles of oxygen gas and water		
		Design Specifications:		
		1. Features white granules and crystals solid		
		2. Chemical formula: KI		
		3. Mass per bottle: 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
14	Sodium Hydroxide (Lye), 250 grams/bottle	Functional Specifications: Used : a) to differentiate an acid from a base		
		b) as a titrant added from a base burette in acid base titration		
		Performance Specifications: a) Must turn pink when added with drop/s of phenolphthalein and be able to neutralize an acid to form salt and water		
		b) In acid-base titration, the sodium hydroxide is used as a titrant added from an base buret to a known quantity of the analyte (the unknown solution) until the reaction is complete. Knowing the volume of titrant added allows the determination of the concentration of the unknown using the formula : $N_a = N_b V_b / V_a$		
		c) pH value : pH 13-14		
		Design Specifications:		
		1. Features a white semi-transparent odorless hygroscopic solid		
		2. Chemical formula : NaOH		

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		3. Mass per bottle : 250 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
15	Yeast, active dry, 100 grams / bottle	Functional Specifications: Used to break down some of the starch and sugar in the mixture to produce more yeast cells and carbon dioxide gas.		
		Performance Specifications: Must be able to illustrate asexual type of reproduction.		
		Design Specifications:		
		1. Active dry yeast in granules		
		2. Color: Ivory light brown		
		3. Capacity: 100 grams per bottle		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, the name of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date. Expiration shall be at least two years.		
		7. Must be branded and brand new. The brand shall be printed on the product label.		
16	Zinc Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify zinc or its ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as a substrate in Flame test to visually identify zinc element or its ion based on the characteristic color it emits on the Bunsen flame. Zinc chloride emits a blue green to pale green/colorless color which indicates the presence of the zinc ion		
		Design Specifications:		
		1. Features a white crystalline/granular solid powder		
		2. Chemical Formula : ZnCl ₂		
		3. Mass per plastic bottle: 100 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		

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		9. Comes with a brand marked permanently on the product label		
		10. Must be brand new		
17	Zinc metal, pellets/mossy, 100 grams / bottle	Functional Specifications: Used as a reducing agent to reduce the other reactant of a single displacement (redox reaction) with metals above it in the Activity Series of Metals		
		Performance Specifications: Must be able to reduce the other reactant of a single displacement (redox) reaction with metals above it in the Activity Series of Metals, , like zinc, to produce salt and the displaced metal in its free state		
		Design Specifications:		
		1. Features a bluish white, or as a grey powder/pellets/mossy solid		
		2. Chemical Formula : Zn		
		3. Mass per plastic bottle : 100 grams		
		4. Comes in original screw type plastic packing, with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		

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Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
LOT 3: GLASSWARES AND LAB TOOLS (MI-LOT 3)				
1	Beaker, borosilicate, 250 mL	Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100°C for normal, standard use service		
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100°C for normal, standard use service		
		Design Specifications:		
		1. Features a cylindrical container with straight sides, a flat bottom, with a beaded rim and with a small spout (or "beak") to aid in pouring.		
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:		
		Outside diameter: 68-70mm		
		Height: 90-92 mm		
		Thickness: 1.5 mm to 2.0 mm		
		3. Type: Griffin, low form		
		4. Features an easy-pour spout		
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/markings enamelled onto the glass, which includes the following:		
		a) Capacity: 250 mL		
		b) Manufacturer's name or trademark		
		c) With large white marking spot		
		d) With double graduated metric scale		
		d1) With marking graduation to fill: starts at 25 mL in 25mL increments		
		d2) With marking graduation to empty: starts at 0 mL in 200 mL increments		
		d3) Graduation interval: 25 mL		
		d4) Graduation range: 25 mL to 200 mL		
		6. Must be able to stand solidly/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Must be able to withstand heating of water up to 150 deg C		
		9. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box		
		10. Comes with a brand enamelled permanently onto the glass		
		11. Must be brand new		
2	Beaker, borosilicate, 50 mL	Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100 °C		
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100 °C		

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		Design Specifications:		
		1. Features a cylindrical container with straight sides, a flat bottom with a beaded rim and a small spout (or "beak") to aid in pouring		
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:		
		Outer diameter: 40-42 mm		
		Height: 55-57 mm		
		Thickness: 1.5 to 2.0 mm		
		3. Type: Griffin, low form		
		4. Features an easy-pour spout		
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/ markings enamelled onto the glass, which includes the following:		
		a) Capacity: 50 mL		
		b) Manufacturer's name or trademark		
		c) With large white marking spot		
		d) With single graduated metric scale		
		d1)With marking graduation to fill: starts at 10 mL in 10 mL increments		
		d2) Graduation interval: 10 mL		
		d3) Graduation range: 10 mL to 40 mL		
		6. Must be able to stand solidly/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Must be able to withstand heating up water up to 150°C		
		9. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box.		
		10. Comes with a brand enamelled permanently onto the glass		
		11. Must be brand new		
3	Burette, 10 mL capacity (acid)	Functional Specifications: Used to hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base in acid-base titration to determine unknown concentration of base		
		Performance Specifications: Must hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base (with color change from pink to colorless when end point is reached) in acid-base titration to determine unknown concentration of base		
		Design Specifications:		
		1. Features a long,vertical cylindrical glass tube with a volumetric graduation on its full length,with a leak-free plastic stopcock at its lower end and a tapered capillary tube at the stopcock's outlet.		
		2. Material : Clear, transparent, smooth, bubble-free high quality borosilicate glass, with the following dimensions:		
		Length of burette: 510-620 mm		
		3. Fitted with grease-free interchangeable with 1.5 to 2 mm bore plastic leak-free stopcock plug. Material of of stopcock :PTFE key		

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		4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters, inscriptions/ markings under normal conditions of use of the burettes, and large, easy-to-read numbers every 0.5 mL enamelled permanently onto the glass before the first graduation line which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 10 mL		
		c) Sub. Div. : 0.05 ml		
		d)Tolerance: ± 0.02 - ± 0.03 mL		
		e) Class: A		
		f) Unit of volume: mL		
		g) Ex		
		h) Reference Temp: 20°C-27°C		
		5. With Statement of Accuracy /Certificate of Accuracy) latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		6. Marked with an individual serial number (Serially Numbered)		
		7. Individually placed in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box.		
		8. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		9. Includes Operations Manual in English,		
		10. With Activity Sheets/Teacher's Manual in English		
		11. Comes with a brand enamelled permanently onto the glass		
		12. Must be brand new		
4	Burette, 10 mL capacity (base)	Functional Specifications: Used to hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity in acid-base titration to determine unknown concentration of acid		
		Performance Specifications: Must hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity (with color change from colorless to very faint pink when end point is reached) in acid-base titration to determine unknown concentration of acid		
		Design Specifications:		
		1. Features a long, graduated glass tube, with a leakage-free stopcock at its lower end and a tapered capillary tube at the screw type stopcock's outlet.		
		2. Material : Clear, transparent, bubble-free, smooth borosilicate glass, with the following dimensions:		
		a) Length of burette: 444.5-520 mm		
		3. With PTFE (screw-thread type/needle valve-Rotaflow leak-proof plastic) stopcock		
		4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters and inscriptions with large, easy-to-read numbers every 0.5-1.0 mL subdivisions enamelled permanently onto the glass, before the first graduation line, which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 10 mL		
		c) Sub. Div. : 0.05 ml		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		d) Tolerance: 0.05 mL		
		d) Class: B		
		e) Unit of volume: mL		
		f) Ex		
		g) Reference Temp: 20°C-27°C		
		5. With machine Jet flow control which is made from thick walled capillary tubing which forms an integral part of the burette shall have no cavity at the join likely to trap air bubbles.		
		6. With Statement of Accuracy /Certificate of Accuracy) latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		7. Marked with an individual serial number (Serially Numbered).		
		8. Individually placed in bubble wrap, enclosed in polystyrene and packed in a padded sturdy box		
		10. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		11. Includes Operations Manual in English,		
		12. With Activity Sheets/Teacher's Manual in English		
		13. Comes with a brand enamelled permanently onto the glass		
		14. Must be brand new		
5	Burner, Alcohol, glass, 150 mL Capacity	Functional Specifications: Used to produce hot, consistent open flame for slow/gentle heating of glasswares and substances		
		Performance Specifications: Must be able to produce hot, consistent open flame a)for slow/gentle heating of glasswares and substances b)can withstand prolonged heating without breaking		
		c) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test		
		d) bend a glass tubing		
		e) heat, to sterilize, to accelerate, and to trigger chemical reactions,		
		f) for combustion purposes and techniques		
		Design Specifications:		
		1. Features a globe-shaped body and flat base (bottom) with threaded mouth		
		2. Material : Sturdy, heavy walled, clear, transparent, smooth, bubble-free glass,		
		3. Capacity : 150 mL		
		4. With rust/corrosive-free wick holder permanently attached to a threaded base		
		a) Material of wick holder and cover/caps : Nickel- plated brass		
		b) Type of wick holder : Threaded		
		5. With one (1) pc cotton fiber/strand braided wick perfectly fitted to the wick tube		
		a) Material of wick : Cotton fiber/strand		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		b)Type of wick: Braided		
		c)Length of wick : 178-179 mm		
		d)Diameter : 5-6 mm		
		6. With shiny, smooth, and corrosion-free metal snuff/snap-on cover/ cap		
		7 With ten (10) pc replacement braided cotton fiber/strand wicks		
		8. Wrapped in paper, enclosed in bubble wrap and packed in a compartmentalized box		
		9. Must be free from rust, breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		10. Comes with a brand printed permanently onto the box		
		11. Must be brand new		
6	Burner, Bunsen	Functional Specifications: Used to :		
		a) produce single, hot, continuous, consistent open blue flame		
		b) for slow/gentle heating of glasswares and substances,		
		c) rapidly heat high-boiling liquids with low flammability like water		
		d) heat, sterilize/accelerate/ trigger chemical reactions,		
		e) for combustion purposes		
		Performance Specifications: Must be able to produce a single, hot, continuous, consistent open blue flame to:		
		a) visually determine the hottest part of the Bunsen flame		
		b) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test		
		c) bend a glass tubing		
		d) used as a heating medium to demonstrate distillation, as one of the simple separation techniques		
		e) slow/gentle heating of glasswares and substances		
		f) rapidly heat high-boiling liquids with low flammability like water		
		g) heat, to sterilize, to accelerate, and to trigger chemical reactions,		
		h) for combustion purposes and techniques		
		Design Specifications:		
		1.Type : Gas type with accessories		
		2. Features a long, hollow burner tube with stabilizer top and serrated inlet tube		
		3. Material for burner tube : Aluminum, with the following dimensions:		
		a) Diameter of burner tube: 11-12 mm diameter		
		b) Over-all height: 152-155 mm		
		4. With flame stabilizer		
		5.With threaded gas needle valve (located opposite to serrated inlet tube)		
		6. Material of base: Nickel-plated zinc-alloy		
		7. Must be able to stand solidly/is stable when placed on a level surface		
		8. Individually packed in a sturdy box		
		9. With User's Manual and Operations Guide in English		
		10. Comes with Activity Sheets with Teacher's Manual in English		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		11. For numbers #9 to 10; the technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) In 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		12. Must be free from rust, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein.		
		13. Comes with a brand printed permanently on the box		
		14. Must be brand new		
7	Cork Stopper # 5 (for Ø 16mm test tube)	Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware to prevent leaks, hazards and contamination to yield positive results during chemical reactions		
		Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware and to prevent leaks, hazards and contamination to yield positive results during chemical reactions		
		Design Specifications:		
		1. Features an extra Select Grade cylindrical with a tapered bottom end with fewer lenticels (crevices)		
		2. Material of cork : Elastic and near impermeable with the following dimensions:		
		a) Height : 22-22.5 mm		
		b) Top Ø : 15-15.5 mm		
		c) Bottom Ø: 13-13.5 mm		
		3. Number of cork stopper: #5		
		4. Must perfectly fit the 16 x 150 mm test tube		
		5. Must be free from defect of discontinuities in the cork tissue such as "lung", exfoliation, and insect,ant/worm galleries and all other defects not stated herein.		
		6. Packed in a resealable plastic bag		
		7. With brand printed permanently on the resealable plastic bag		
		8. Must be brand new		
8	Crucible with lid/cover	Functional Specifications: Used as a container to heat metals or other substances may be melted or subjected to very high temperatures		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to contain elements, compounds, metals, organic compounds or other substances to be melted or subjected to very high temperatures to determine mass relationship in a chemical reaction		
		Design Specifications:		
		1. Features a high/tall form cylindrical crucible		
		2. Capacity : 30 mL		
		3. Material : Porcelain, with the following dimensions:		
		a) Height : 43-50 mm		
		b) Base diameter: 24-26 mm		
		c) Top diameter: 33-40 mm		
		4. Glazed inside and out, except outside bottom and rim.		
		5. With crucible cover completely glazed except for rim.		
		6. Must be able to stand solidly flat/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein		
		8. Comes with a brand printed permanently in the compartmentalized sturdy box		
		9. Must be brand new		
9	Dish, Evaporating, 75 mL	Functional Specifications: Used to contain/hold substances and to heat chemical solutions gradually, driving off the water to leave residual chemical solute		
		Performance Specifications: Must be able to contain/hold substances and to demonstrate evaporation, as one of the techniques in separating mixtures, by heating chemical solutions gradually, driving off the water to leave residual chemical solute		
		Design Specifications:		
		1. Features a deep form, broad, and wider at the top, with round bottom		
		2. Material : Porcelain, with the following dimensions:		
		a) Diameter : 80-82 mm		
		b) Height/depth : 30-35 mm high		
		3. Capacity: 75 mL		
		4. With pouring lip/spout		
		5. Must be free from breakage, cracks, chipped rims and sharp edges, other surface irregularities and other defects not stated herein.		
		6. Must be able to contain the salt solution for an experiment on evaporation		
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein.		
		8. Each dish is individually packed, wrapped in paper, and packed in a sturdy box		
		9. Comes with a brand printed permanently in the sturdy box		
		10. Must be brand new		
10	Distillation set-up: Condenser, Liebig-type	Functional Specifications: Used to condense the water vapor into its liquid state producing a distillate		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to condense the water vapor into its liquid state producing a distillate, used in distillation, as one of the simple separation techniques		
		Design Specifications:		
		1. Features two concentric straight glass tubes, the inner one being longer and protruding at both extremities, surrounded by a water jacket with sealed inner tube and outer tube of an inner straight tube surrounded by an outer jacket tube, the cool water flows through the outer jacket to condense the vapor in the inner tube, having a better cooling performance than air condenser.		
		2. Material : Transparent, smooth, clear, bubble-free borosilicate glass, with the following dimensions:		
		a) Tubulation OD: 9-15 mm		
		b)Jacket OD : 40- 43 mm		
		c)Jacket length : 300-301 mm		
		d)Over-all Length: 458-460 mm		
		3. With the following permanent inscriptions and numbers permanently enamelled onto the glass:		
		a) Manufacturer's name or trademark		
		b) Ground cone and socket joint: 24/40		
		4. With sealed inner tube		
		5. With Standard Taper Outer and Inner Joints permanently enamelled onto the glass the glass		
		5. With a drip tip at the bottom		
		6. Accessories:		
		a) One (1) pc rubber stopper that will fit upper (inlet) tube		
		i) Number of rubber stopper : #3		
		ii) Number of hole : One (1) hole		
		iii)Diameter of hole : 5.0-5.5 mm		
		iv) Hardness : 40-45 Duro		
		b) Rubber tube		
		Material of rubber Hose : Non-tacky, Latex rubber tube with the following dimensions:		
		ii) Inner diameter : Ø 8.0-8.5 mm		
		iii) Outer diameter : Ø 12.0-12.5 mm		
		iv) Length : 3000-3005 mm long		
		v) Color of rubber tube : Amber		
		7. The glass is wrapped in bubble wrap, enclosed in a polystyrene and packed in a sturdy box while the rubber stopper /tube is placed in a resealable plastic bag.		
		8. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein		
		9. Must be able to produce a distillate during experiment on Distillation using this item as part of the whole set		
		10. Must have User's Manual in English on the installation, use and care, proper storage with repair and maintenance		
		11. With Activity Sheets/Teacher's Manual in English		
		12. For numbers #10 to 11; the technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		14. Must have a brand enamelled permanently onto the glass		
		15. Must be brand new		
11	Distillation set-up: Distilling Flask, borosilicate, 250ml,	Functional Specifications: Used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique		
		Performance Specifications: Must be used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique		
		Design Specifications:		
		1. Features a long neck, a side arm that facilitates condensation, and a round bottom for uniform heating .		
		2. Material : Clear, transparent, bubble-free borosilicate glass with a beaded rim with the following dimensions:		
		a) Flask Height : 240-250 mm		
		b) Side Arm Length: 129-130 mm		
		c) Side arm : 76 to 78 mm below the top of the neck		
		3. With the following permanent inscriptions and numbers permanently enamelled onto the glass:		
		a) Capacity: 250 mL		
		b) Manufacturer's name or trademark		
		c) With permanent large white marking spot		
		4. Supplied with an accessory		
		a) rubber stopper that fits the mouth of the distilling flask		
		i) Hardness: 40-45 Duro		
		ii) Number of hole : One (1)		
		iii) Diameter of hole: 5-5.5 mm		
		5. Wrapped in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box		
		6. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein		
		7. Must be able to produce a distillate during an experiment on Distillation using this item as a part of the distillation setup		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		8. Must have a brand enamelled permanently onto the glass		
		9. Must be brand new		
12	Double burette clamp	Functional Specifications: Used to hold and secure two burettes on a stand, so that each burette is fixed and more convenient for the experiment.		
		Performance Specifications: Must be used to hold and secure two burettes simultaneously on a stand, so that the burettes are fixed and more convenient to perform acid-base titration experiment to determine concentration of solutions.		
		Design Specifications:		
		1. Features a double Y-shaped or butterfly-shaped items which have spring action clamps.		
		2. Material of body: Die cast aluminum with chemical resistant white enamel finish,with the following dimensions:		
		Length range : 245-262 mm		
		Width range : 120-127 mm		
		Mounting hole diameter (□): 15-36 mm		
		3. Color of body : White enamel		
		4. Material of sleeves/jaws/grips : Vinyl or rubber for excellent grip		
		5. Color of sleeves/jaws/grips : Colored		
		Distance between sleeves/jaws/grips : 85 -120 mm		
		6. With 4 spring action clamps, 2 on each opening		
		7. With two separate adjusting knobs or squeeze clamping mechanism		
		8. Color of adjusting knobs : Colored		
		9. Mounts directly to standard support rod with built in hook connector.		
		10. The dual metal burette clamp supports burettes from 10-100 mL (10-100 cc).		
		11. They can be attached to support stand rods from 16 mm to 17 mm diameter		
		12. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		13. Comes with a brand marked permanently onto the body/box		
		14. Must be brand new		
13	Electrolysis Apparatus, student-type (Brownlee)	Functional Specifications: Used to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water.		
		Performance Specifications: Must be able to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water. Positive results occur:		
		a) When an ember in a stick is introduced onto the test tube with hydrogen gas, it pops.		
		b) If the gas is oxygen, the ember must glow more		
		Design Specifications:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		1. Shape of Jar : Cylindrical container with a flat bottom, with a wide mouth and a small turned-out lip for pouring		
		2. Material of jar: Clear, transparent, smooth, and bubble-free borosilicate glass, with the following dimensions:		
		a) Diameter : 114-130 mm		
		b) Height : 127-160 mm		
		3. Capacity: 1000 mL		
		4. Comes with two (2) electrodes		
		a) Material of two electrodes: Platinum		
		b) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the electrodes, is platinum , to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		5. Comes with an acid-proof insulating support to hold the two binding posts (one red, one black)		
		6. Holder of two test tubes : Two (2) spring clips		
		7. With two (2) reusable test tubes with graduations		
		a) rimless		
		b) graduated from its bottom to top. Zero starts at bottom and 25- 27 mL on top/mouth of test tube		
		c) Material of test tubes : Borosilicate , clear, smooth, transparent and bubble-free reusable glass, free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein, with the following dimensions:		
		c1) Diameter: 18 mm		
		c2) Length : 150-151 mm long		
		c3) Capacity : 25-27 mL		
		d) With heavy uniform wall thickness, excellent heat resistance, round bottom glass		
		e) With permanent graduation lines of approx. volume and inscriptions in high contrast fine, clean, continuous and of uniform width, and in colored enamel.		
		f) With Certification from the manufacturer that the test tubes are reusable and not disposable		
		8. Comes with power source: 220 V -240 V AC input)/ (0-12 V) DC output, and with switch selector		
		9. Comes with 9 V battery with one (1) battery snap		
		10. Comes with two (2) connecting wires (1 red, 1 black)		
		a) Length : 304-305 mm		
		b) Type of wire : Stranded		
		c) Gauge no. : 20 - can be seen printed on the insulation of the wire		
		d) Comes with with alligator clip soldered on one end of the wires with banana plugs soldered on the other end of each wire (1 red, 1 black)		
		12. Comes with two (2) replacement graduated test tubes		
		a) rimless		
		b) graduated from its bottom to top. Zero starts at bottom		
		c) Material of test tubes : Borosilicate , clear, transparent and bubble-free-glass, with the following dimensions:		
		d)Diameter :18.0-18.5 mm		
		e) Length :150-151mm long		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		f) Capacity : 25 mL		
		g) With heavy uniform wall thickness, excellent heat resistance, round bottom glass		
		h) With permanent graduation of approx. volume and inscriptions in high contrast white enamel.		
		i) With brand etched/printed permanently onto the item		
		13. Comes with two (2) solid rubber stoppers to fit perfectly the two (18 x 150 mL) test tubes		
		14. Must be able to separate water into its elements producing two gases (hydrogen and oxygen) with a 2:1 ratio , a) 2 mL hydrogen: 1 mL oxygen; b) 4 mL hydrogen: 2 mL oxygen, c) 6 mL hydrogen: 3 mL oxygen, d) 8 mL hydrogen: 4 mL oxygen, e) 10 mL hydrogen: 5 mL oxygen, and so on until 6-8 mL of the has been collected for hydrogen gas, during the Electrolysis of Water experiment, and then test for the gases. Testing for each of the gases: a) For the gas collected at the negative electrode, a popping sound must be produced - Hydrogen gas b)For the gas collected at the positive electrode, the ember must glow more - Oxygen gas supports combustion		
		15. With a well written Operations Manual and Assembly Guide in English		
		16. With sample Activity Sheets/Teacher's Manual in English		
		17. With Detailed instructions provided.		
		18. For numbers 15-17, the following technical specifications from (a-e) must be followed:		
		a) For List of materials, In Table form		
		b) For User's Manual, Teacher's Guide, Student Worksheets, Instruction Sheets/ Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Orientation:Portrait		
		v) Margins on all sides with 2 point width border line		
		vi) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		19. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: I. Training Video Contents: "a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: "a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents)." 		
		20. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded box with storage slots for each item to help prevent glass breakage.		
		21. Must be free from breakage, cracks, chipped rims and sharp edges surface irregularities and other defects not stated herein		
		22. Comes with a brand etched/enamelled permanently onto the glass		
		23. Must be brand new		
14	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	Functional Specifications: Used to :		
		a) contain/hold a small chemical reaction,		
		b) mix solids and liquids,		
		c)heat substances over a Bunsen/alcohol burner's flame up to over 100 °C or		
		d)collect them in a titration/distillation experiment		
		Performance Specifications: Must be able to:		
		a) contain/hold a small chemical reaction ,		
		b) mixes solids and liquids during chemical reaction,		
		c) heats substances up to 100°C over a Bunsen burner's flame up to 250 mL, or		
		d) serves as a reaction vessel in a titration experiment, and to collect distillate during distillation		
		Design Specifications:		
		1. Features a conical body, a cylindrical short neck , narrow mouth, with sloping sides, beaded rim, and with a flat bottom		
		2. Material : Clear, and transparent bubble-free, smooth, borosilicate, glass with the following dimensions:		
		a)Outside diameter: 80-82 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		b)Height: 130-132 mm		
		c) Thickness: 1.5 to 2.0mm		
		b) Neck inside diameter range : 28 to 30 mm		
		3. With uniform wall thickness		
		4. With narrow mouth, heavy duty beaded rim, graduated		
		5. With permanent durable white enamel graduations of approximate volumes, large white block letters,numbers and easy to read inscriptions enamelled onto the glass, which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 250 mL		
		c) With large white marking spot		
		d) With single graduated metric scale		
		d1) Graduation range : 50 -200 mL		
		d2) Graduation interval: 25 mL		
		d3) Graduation starts at: 50 mL in 25 mL increments		
		e) Tolerance: ±6% and other inscriptions enamelled onto the glass		
		6. Wrapped in paper and individually packed in a compartmentalized box		
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Must be able to withstand heating of water up to 150 deg C		
		9. Placed in bubble wrap and packed in a sturdy box to help prevent glass breakage.		
		10. Comes with a brand enamelled permanently onto the glass		
		11. Must have a brand printed permanently on the glass		
		12. Must be brand new		
15	Funnel, borosilicate, fluted	Functional Specifications: Used to direct the smooth flow of the liquid or fine-grained substances into another container tp prevent spills		
		Performance Specifications: Must be able to direct the smooth flow of the liquid or fine-grained substances into another container to prevent spills		
		Design Specifications:		
		1.Type : 60 ° angle, Fluted short stem funnel		
		2. Shape: A wide, inverted conical top with narrow short circular tube at the bottom, with depressed inside flutings in 60° angle		
		3. Material: Borosilicate, clear, transparent,bubble-free glass,with the following dimensions:		
		a) Top outside diameter: 75-76 mm		
		b) Stem outer diameter : 8-8.5 mm		
		c) Stem length : 75-76 mm		
		d) Total Height : 139-140 mm		
		4. With heavy beaded rim/edge and heavy uniform wall for strength.		
		5. With slanted fire polished tip, filter angle (angled 60°) and depressed inside fluting help reduce filtering time		
		6. Wrapped in paper, enclosed in bubble wrap, and individually packed in a sturdy box		
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		8. Comes with a brand and 60° embossed permanently onto the glass		
		9. Must be brand new		
16	Glass Tubing	Functional Specifications: Used to contain/hold/mix liquids or gases during chemical reactions and to connect other pieces of equipment/glasswares to a gas or liquid assembly		
		Performance Specifications: Must be able to:		
		a) be bent to connect other pieces of equipment/glasswares to a gas or liquid assembly like in the activity "Flowing Up" and connect Florence flask to the Liebig condenser as a substitute for distilling flask for Distillation set up		
		b) contain/hold/mix liquids or gases during chemical reactions, to relate the rate of gas effusion with molar mass and demonstrate Graham's law of effusion in an experiment where a white ring mass is observed		
		Design Specifications:		
		1. Shape : Long slender hollow glass		
		2. Material : Soda lime, clear, transparent, bubble-free glass tubing, with the following dimensions:		
		a) Outside diameter : 6.0-6.5 mm		
		b) Wall thickness : 1.0-1.2 mm		
		c) Length: 1219-1500 mm		
		3. With fire polished ends		
		4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box		
		5. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		6. Comes with a brand printed permanently on its packaging		
		7. Must be brand new		
17	Manometer, Open U-tube	Functional Specifications: Used to indicate the difference in the heights of the manometric liquid to measure pressure		
		Performance Specifications: Must be able to indicate the difference in the heights of the manometric liquid to measure pressure by getting the pressure difference		
		Design Specifications:		
		1. Type : Differential pressure manometer		
		2. Shape : U-shaped glass tube partially filled with liquid, with no moving parts and requires no calibration		
		3. Material : Glass		
		4. With a 50-52 cm arm with funnel top on one arm and 4.5-5.5 cm bent (90°) with 15-16 mm rifled tip on another arm for easy connection		
		5. U-tube is mounted on a board, fixed on a wooden stand for vertical mounting using metal clips		
		a) Material of stand : Wood/en		
		b) Dimensions of back plate		
		i) Length : 540-542 mm		
		ii) Width : 90-102 mm		
		6. A millimeter scale is fitted between the arms of the tube.		
		a) Scale having graduation range: 0-50 cm		
		b) Graduation increment: 1 mm, with 0 at the bottom		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Accessories:		
		a) With latex tubing, glass wall 2 mm thickness, 7.5-8.0 mm inner diameter.		
		i) Material of rubber tubing: Non-toxic non-tacky latex rubber tubing for the laboratory activity.		
		ii) Length of rubber tube: 3000-3005 mm		
		8. Stand with glass tube placed in bubble wrap, enclosed in bubble wrap and packed individually in a sturdy box		
		9. Accessories enclosed in resealable plastic bag		
		10. With User's Manual in English		
		11. With Assembly Guides and Activity Sheets		
		12. For numbers #10 and 11; they must be:		
		a) In Table form for List of materials, in A4 size, glossy paper, laminated		
		b) In sentences format for instruction sheets/assembly guides		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) Printed in original copy, not photocopied		
		d) In colored drawings/illustrations		
		e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein.		
		14. Individually packed in a sturdy box		
		15. Comes with a brand printed permanently onto the wooden stand		
		16. Must be brand new		
18	Mortar and Pestle, porcelain, 150 mL.	Functional Specifications: Used to pulverize/mash/grind and to mix materials in a mortar using a pestle		
		Performance Specifications: Must be able to pulverize/mash/grind and mixes materials in a mortar using a pestle to demonstrate how particle size affects solubility and the rate of chemical reaction.		
		Decreasing the size of the particles increases the rate of dissolving and speeds up the rate of reaction because the surface area of the reactant has been increased.		
		Design Specifications:		
		A. Mortar		
		1. Shape of mortar : Deep form, bowl shape, with wide mouth , and with deeply molded, smooth rounded bottom		
		2. Material for mortar and pestle: Porcelain, with the following dimensions:		
		a) Outside diameter : 130-132 mm		
		b) Height/Depth : 65-85 mm		
		3. Capacity: 150 mL		
		4. With pouring lip		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. With unglazed grinding surface (interior) and uniformly glazed exterior		
		B. Pestle:		
		6. Shape of pestle: Cylindrical with bulbous bottom, with the following dimensions:		
		a) Length range : 133-160 mm and		
		b) Diameter range: 28-40 mm diameter at its widest point.		
		7. Material of pestle: A heavy bat-shaped porcelain		
		8. Uniformly glazed on its handle and rough on opposite end		
		9. The set is individually wrapped, enclosed in a bubble wrap and packed in a sturdy box		
		10. Must be free from breakage, cracks , chipped rims, sharpedges, all surface irregularities and all other defects not stated herein		
		11. Comes with a brand marked permanently on the body/box		
		12. Must be brand new		
19	Osmosis Apparatus	Functional Specifications: Used to to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube		
		Performance Specifications: Must be able to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube, to describe/demonstrate the effect of concentration on one of the colligative properties (osmotic pressure) of solutions		
		Design Specifications:		
		1. Features a a long shaft of tube with a reservoir and a funnel like/flared rim section at the top and at the bottom. The shaft is designed to allow insertion through a small hole present in a Y-shaped support stand giving way for the tube to be inserted into a container.		
		2. Comes as a complete set, which is composed of the following items:		
		a) With one (1) pc battery jar = 600-605 mL cap		
		b) With one (1) pc double thistle tube with brand name etched onto the glass		
		b1) Shape of double thistle tube: A long shaft of tube thatends in a reservoir bulb with a funnel shaped/flared rim at the top and bottom part		
		b2) Material of double thistle tube and jar : Smooth, clear, transparent free from bubbles, striae, or other imperfections borosilicate glass, with the following dimensions:		
		Length of double thistle tube : 405-410 mm		
		Diameter of each thistle tube (top and bottom): 29-30 mm		
		Diameter of glass tube: 14-15 mm		
		c) With one (1) pc stable Y-shaped metal support stand, safe to use, and absence/free of all sharp edges , all surface imperfections/irregularities and all other defects not stated herein		
		c1) Shape of metal support stand: Y-shaped support stand		
		c2) Material of support stand: Aluminum		
		c3) With a black plastic adjusting screw at the rear end with the red adjusting screw near the center of the Y-support stand used to adjust the opening of the stand when the double thistle tube is mounted vertically in place		
		d) Comes with ten (10) pc semi-permeable membrane		
		3. Each item is individually placed in a snap fit organizer shaped into each item and packed as a complete set in a padded sturdy polystyrene box		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. With Instruction Manual and Activity Sheets		
		5. With a well written User's Manual (Assembly guides) and Activity Sheets in American English, with technical specifications details(a-e) as follows:		
		a) original print		
		b) A4 size copy paper (80 gsm)		
		c) With colored pictures, drawings/illustrations		
		d)Margin of 1/2 inch on all sides: with 2 point width border line		
		e) Lay out orientation : Portrait		
		f) Title: OSMOSIS APPARATUS shall be placed on the top center		
		i) Font style: Times New Roman		
		ii) Font size: 36		
		iii) UPPERCASE		
		iv) BOLD		
		g) Labels		
		i) Font style : Times New Roman		
		ii)Font size: 14.		
		iii) First letter of the label is capitalized		
		iv) Line with arrowhead of 1.25 width shall point to the specific part being labeled		
		h) Sentences must be grammatically correct and with correct spelling, punctuation and terminologies		
		i) with colored illustrations and drawings		
		j) with 0.3 mm minimum thickness plastic laminated in thick plastic		
		6. Must be free from rust and dirt, breakage, cracks , chipped rims, sharp edges, other surface irregularities and all other defects not stated herein		
		7. Placed in bubble wrap, with storage slots for each item enclosed in polystyrene and packed as a set in a padded box to help prevent glass breakage.		
		8. Comes with a brand permanently etched onto the double thistle tube and in the box		
		9. Must be brand new		
20	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	Functional Specifications: Used to contain/store and to provide UV protection of prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents		
		Performance Specifications: Must be able to contains/store and to provide UV protection for the prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents.		
		Design Specifications:		
		1. Shape : Cylindrical narrow-mouth bottle		
		2. Material : Borosilicate, smooth, bubble-free glass with the following dimensions:		
		a) Bottle diameter range: 66-72 mm		
		b) Neck I.D. range : 23-28 mm		
		c) Over-all height: 130 to 150 mm		
		3. Color: Amber		
		4. With approximate volumes, capacity, and other markings are in permanent white enamel which resists aggressive washing solutions		
		a) Manufacturer's name or trademark		
		b) 250 mL		
		c) white marking field/spot in permanent white enamel		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. With octagonal plastic stopper Socket size: 19/26 that fits the mouth well		
		6. With a white marking field/spot in permanent white enamel		
		a) logo/brand name		
		b) 250 mL		
		7. Wrapped in paper, enclosed in bubble wrap and packed individually in a padded sturdy box		
		8. Must be free from breakage, cracks, chipped rims, sharp edges, striae, all surface irregularities including all other defects not stated herein		
		9. Comes with a brand enamelled permanently onto the glass		
		10. Must be brand new		
21	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	Functional Specifications: Used to hold/ contain/store prepared solutions/ substances		
		Performance Specifications: Must be able to hold/contain/store prepared solutions/substances		
		Design Specifications:		
		1. Shape: Cylindrical wide-mouth bottle		
		2. Material: Borosilicate, clear, smooth, transparent and bubble-free glass, with the following dimensions:		
		a) Bottle diameter : 69 mm to 73 mm		
		b) Mouth diameter: 34 mm to 44 mm		
		c) Height : 129 mm to 142 mm		
		3. Features no-drip pour lip		
		4. With ground-in glass stopper		
		5. With air tight seal		
		6. With approximate volumes, capacity, and other markings are in permanent white enamel/stain which resists aggressive washing solutions		
		a) Manufacturer's name or trademark		
		b) 250 mL		
		c) white marking field/spot in permanent white enamel		
		7. Wrapped in paper, enclosed in bubble wrap and packed individually in a sturdy box		
		8. Must be free from breakage, cracks, chipped rims, sharp edges, all surface irregularities and all other defects not stated herein		
		9. Comes with a brand enamelled onto the glass		
		10. Must be brand new		
22	Rubber Stopper # 0 (for Ø 16mm test tube)	Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination		
		Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination		
		Design Specifications:		
		1. Shape: Cylindrical with a tapered bottom end		
		2. Material : Rubber compound with the following dimensions:		
		a) Height : 25-25.5 mm		
		b) Top Ø : 17-17.50 mm		
		c) Bottom Ø : 13-13.5 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		3. Hardness : 40-45 Duro		
		4. Packed in resealable plastic bag		
		5. With no. 0 embossed onto the rubber stopper		
		6. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein		
		7. Comes with a brand marked permanently in the bag		
		8. Must be brand new		
23	Spoon-spatula, porcelain and glazed	Functional Specifications: Used to hold/contain and transfer solids and liquids from one container to the other		
		Performance Specifications: Must be able to hold/contain and transfers solids and liquids from one container to the other		
		Design Specifications:		
		1. Features a white, broad, flat, blade (spatula) on one end and a spoon on the other end.		
		2. Material : Uniformly glazed smooth finish porcelain		
		a) Capacity: 0.3 mL		
		b) Over all Length : 121-142 mm		
		3. Must be free from breakage, cracks, chipped edges and all other defects not stated herein		
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box.		
		5. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein.		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		
24	Stirring Rod, Ø 6 mm x 250 mm long	Functional Specifications: Used to mix liquids and solids		
		Performance Specifications: Must be able to mix liquids and solids well to speed up the dissolving process and increases the rate of reaction		
		Design Specifications:		
		1. Features a long, slender cylindrical solid glass, with the same thickness and slightly longer than a drinking straw and with rounded fire polished ends.		
		2. Material: Clear, transparent bubble-free stir stick solid borosilicate glass with the following dimensions:		
		a) Diameter(Ø) : 6-6.3 mm		
		b) Length: 250-254 mm long		
		3. With rounded and fire polished ends		
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box		
		5. Must be free from breakage, cracks, chipped unpolished ends, all other surface imperfections including all other defects not stated herein		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		
25	Test tube brush	Functional Specifications: Used to clean test tubes and other small sized glasswares		
		Performance Specifications: Must be able to clean test tubes and other small-sized glasswares with densely filled radial tip and head brush to make complete contact with walls, corners and bottom.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Features a radial tufted tip white nylon bristles and brush head lined against a rather sturdy wire handle with a looped end to make complete contact with walls, corners and bottom to clean test tubes and other small sized glasswares .		
		2. Material of bristles : Medium stiff nylon with the following dimensions:		
		a) Diameter of bristle section: 18-19 mm		
		b) Length of bristle section : 82-102 mm		
		c) Over-all length: 228 -229 mm		
		3. Material of handle: Galvanized steel wire		
		4. Type of wire handle : Common loop twisted wire		
		5. With circular wire loop for hanging		
		6. Packed in a resealable plastic bag		
		7. Must be free from rust, sharp edges, all other surface irregularities including all other defects not stated herein		
		8. Comes with a brand marked permanently in the box		
		9. Must be brand new		
26	Test Tube, borosilicate, Ø 16 mm x 150 mm long	Functional Specifications: Used to contain/hold a small chemical reaction , to mix small quantities of solids and liquids, and to heat small quantities of substances		
		Performance Specifications: Must be able to contain/hold a small chemical reaction and , mixes solids and liquids, heats small quantity of substances up to more than 100°C over a Bunsen burner's flame		
		Design Specifications:		
		1. Features a finger-like length of glass tubing, open at the top, usually with a rounded lip at the top, and a rounded 'U' shaped bottom		
		2. Material of test tube: Borosilicate , clear, transparent and bubble-free, reusable glass , with rim, with the following dimensions:		
		a) Outside Diameter: 15.8-16.0 mm		
		b) Thickness: 1.3 -1.4 mm		
		c) Length: 150-152 mm		
		d) Comes with a certification from the manufacturer that the test tube is reusable and not disposable		
		3. Capacity: 20 mL		
		4. With heavy uniform wall thickness, excellent heat resistance		
		5. With large, white enamel marking spot		
		6. Test tubes must be reusable (not disposable)		
		7. Wrapped individually in tissue paper, enclosed in bubble wrap and packed in compartmentalized box		
		8. Must be free from breakage, cracks, chipped rims, surface irregularities and all other defects not stated herein		
		9. Comes with a brand enamelled permanently in the glass		
		10. Must be brand new		
27	Tong, Crucible	Functional Specifications: Used to lift and hold crucibles,remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container		
		Performance Specifications: Must be able to lift and hold crucibles, remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Features a scissor-like and a long bent neck tongs, with two anti-skid pincers or pieces of metals that concave together, which allow the users to grasp a hot crucible, flasks, evaporating dishes, or even small beakers		
		2. Material : Stainless steel,durable, stable, rust and heat resistant		
		a) Color: Silver		
		b) Finish: Smooth		
		c) Overall Length: 228 -229 mm		
		3. With riveted joints		
		4. With serrated tips.		
		5. Enclosed in resealable bag and packed in a sturdy box		
		6. Must be free from rust, dirt, cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		7. Comes with a brand marked permanently in a box		
		8. Must be brand new		
28	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 25 mL		
		Performance Specifications: Must be able to hold/contain/store/mix small quantities of samples up to 25 mL		
		Design Specifications:		
		1. Type : Threaded Screw cap		
		2. Shape : Bottle-like shape with a threaded neck, solid plastic closure and with a flat bottom.		
		3. Material : Borosilicate clear, transparent, and bubble-free glass, with the following dimensions:		
		a) Outside Diameter : 25-30 mm		
		b) Length: 60-80 mm		
		4. With screw- type solid plastic cap		
		5. Shape of neck : Cylindrical, round		
		6. Neck finish : Continuous thread		
		7. Cap Color: Colored		
		8. Cap Attached: No		
		9. Cap Material : Plastic		
		10. Closure style : Solid top, screw thread cap		
		11. Material: Plastic		
		a)Diameter : 25-30 mm		
		b) Length: 60-80 mm		
		12. Capacity: 25 mL		
		13. Packed individually in a compartmentalized/partitioned box		
		14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		15. Comes with a brand marked permanently on the box		
		16. Must be brand new		
29	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 50 mL		
		Performance Specifications: Must be able to hold/contain/store/mix samples/solutions/substances up to 50 mL		
		Design Specifications:		
		1. Type : Threaded Screw cap		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		2. Features a bottle-like shape with a threaded neck, screw cap plastic closure and with a flat bottom		
		3. Material : Borosilicate,clear, transparent, and bubble-free glass with the following dimensions:		
		a) Outside Diameter : 25-50 mm		
		b) Length : 100-108 mm		
		4. Capacity: 50 mL		
		5. Shape of neck : Cylindrical, round		
		6. Neck finish : Continuous thread		
		7. Cap Color :Colored		
		8. Cap Attached: No		
		9. Cap Material : Plastic		
		10. Closure style : Solid top, screw thread cap		
		11. Material : Plastic		
		a)Diameter : 24-26 mm		
		11. Packed individually in a compartmentalized box		
		12. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		13. Comes with a brand marked permanently on the box		
		14. Must be brand new		
30	Watch Glass, Ø 90 mm	Functional Specifications: Used to:		
		a) cover glasswares like beakers		
		b) evaporates solvents in a sample and		
		c) holds/contains liquids and solids prior to heating.		
		Performance Specifications: Must be able to:		
		a) cover glasswares like beakers		
		b) evaporate solvents in a sample and		
		c) hold/contain liquids and solids prior to heating.		
		Design Specifications:		
		1.Shape : Circular concave		
		2. Material : Borosilicate, clear, transparent, and bubble-free glass with the following dimensions:		
		a) Diameter : 90-91 mm		
		b) Thickness range : 1.5 mm to 2 mm		
		3. Fire-polished rims/edges		
		4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box		
		5. Must have fire polished edges/rims, be free from breakage, cracks, chipped and sharp edges, surface irregularities including all other defects not stated herein		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
31	Pipette, Beral, 1 mL	Functional Specifications: Used to transfer/dispense liquid samples.		
		Performance Specifications: Must be able to transfer/dispense liquid sample up to a volume of 1 mL.		
		Design Specifications:		
		1. One-piece pipette, made from flexible soft non-toxic plastic that has a protuberance on top that serves as liquid retention chamber (Certificate of non-toxicity is required)		
		2. Capacity: 1 mL in 0.25 mL grad interval		
		3. No rubber head		
		4. Total length (minimum): 140 mm		
		5. With molded (embossed) graduations		
		6. Must be brand new		
32	Tong, Beaker	Functional Specifications: Used to hold heated beakers.		
		Performance Specifications: Must be able to secure hot beakers.		
		Design Specifications:		
		1. Scissor-like tool with plastic-coated jaws		
		2. Made of minimum 6.0 mm smooth finish chrome-plated steel		
		3. With flat riveted joint		
		4. Total length (minimum) : 254 mm		
		5. Holds beakers from 50mL to 1000 mL		
		6. Safely packed in a box		
		7. Must be branded and brand new. The brand shall be printed on the box.		
LOT 4: SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS – EARTH & SPACE AND LIVING THINGS (MI-LOT 4)				
1	Balance, Toploading, Electronic	Functional Specifications: Used to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability		
		Performance Specifications: Must be able to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability to determine mass relationship in a chemical reaction		
		Design Specifications:		
		1. Type : Digital		
		2. Shape of pan : Rectangular		
		3. Material of pan : Stainless steel		
		4. Removable high strength stainless steel weighing platform		
		5. Load/Capacity : 500 g		
		6. Readability/Accuracy : 0.01 g		
		7. Repeatability : 0.01 g		
		8. Comes with 500 g span calibration mass		
		9. Power Supply : 220-240V/ 50Hz		
		10. With large Liquid crystal display (LCD) with backlight		
		11. With multiple weighing units and overload protection		
		12. With automatic calibration		
		13. With standard RS 232 interface		
		14. Parts counting and percentage weighing		
		15. With accessories, such as:		
		a) the power cord,		
		b) AC Adapter and		
		c) 4 AA batteries		
		d) draft shield		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		16. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		17. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		18. Must be rust-free, free from dirt and breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein		
		19. Comes with a brand marked permanently onto the item		
		20. Must be brand new		
2	Centrifuge	Functional Specifications: Used as one of the separation techniques for mixtures and compounds when the density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens		
		Performance Specifications: Must be able to separate mixtures and compounds based on density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens		
		Design Specifications:		
		1. Type : Fixed speed		
		2. Material: Non-toxic plastic, with the following dimensions:		
		a) Height : 241-266 mm		
		b)Width : 279-330 mm		
		c) Depth : 279-330 mm		
		d) Certification from the manufacturer of the non-toxicity of the material used		
		3. Color finish: Black		
		4. With Angled rotor, 8-Place Centrifuge with Timer		
		5. With Lid safety shut-off switch		
		6. Holds 3 mL to 15 mL size tubes		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. With 12 volt DC maintenance-free motor		
		8. Maximum volume : 120 mL (15 mL x 8)		
		9. Fuse : 3 amp/ 250 volts		
		10. Maximum speed : 3,500 rpm with fixed speed control. (blood, urine, etc.)		
		11. Clear view port in lid for using tachometer		
		12. Suction-cupped feet to prevent slipping		
		13. With Auto-off 30-minute timer with bell		
		14. With power cord		
		15. Power supply: 110/220 v , with auto-switching power adapter		
		16. Certification : CE, UL, cUL approved		
		17. Includes the following:		
		a). Eight-place tube rotor		
		b) Eight 15ml tube sleeves		
		c) Eight 13 x 75 mm tube sleeve inserts		
		d) Eight 15 mL round bottom plastic centrifuge tubes with screw cap with white or black print graduations		
		e) Eight 13 x 75mm round bottom plastic centrifuge tubes with screw cap		
		18. Placed in bubble wrap, enclosed in polystyrene and individually packed in sturdy box		
		19. With Operations Manual and Assembly Guide in English		
		20. With sample activity sheets in English		
		21. For numbers #19 to 20; technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		22. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: I. Training Video Contents: "a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: "a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents)." "		
		23. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein		
		24. Comes with a brand marked permanently onto the label		
		25. Must be brand new		
3	Electrical Conductivity (Conductivity of Solutions) Apparatus	Functional Specifications: Used as a visual demonstration of the electrical conductivity of various liquids/solutions.		
		Performance Specifications: Must be used as a visual demonstration of the electrical conductivity of various liquids/solutions whether it is an/a:		
		a) electrolyte - conducts electricity or		
		b) non-electrolyte - does not conduct electricity .		
		Design Specifications:		
		1. Shape : Cylindrical jar with flat bottom		
		2. Material of jar: Clear, transparent, smooth, and bubble free glass, with the following dimensions:		
		a) Diameter: 72-75 mm		
		b) Height : 75-80 mm		
		3. Capacity of jar/container: 150-200 mL		
		4. It comes with a jar cover which perfectly fits the glass jar		
		a) Material of jar cover: Plastic		
		b) Color of jar cover: Green/Any color		
		5.It consists of an electric lamp (3.0-4.0 V) in series with open electrodes		
		6. It comes with a plastic molded lamp socket		
		7. It comes with one (1) pc bulb		
		a) Type of bulb: Miniature type		
		b) Voltage: 3.0-4.0 volts		
		c) Number of extra light bulbs : Ten (10) pc		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		8. With two (2) binding posts color coded (black and red) for connection to two wire connectors.		
		9. With two (2) electrodes, which fit inside the glass jar, internally connected to the lamp circuit, namely:		
		a) a copper wire (anode) and		
		b) a carbon rod (cathode)		
		10. Length of electrodes : 60-80 mm		
		11. First power source: 2 AA batteries		
		12. With 1 pc battery holder		
		13. Comes with second power source: 220 V -240 V AC input)/ (0-12 V) DC output, comes with switch selector		
		14. Comes with:		
		a) two (2) connecting wires (1 red, 1 black) with alligator clips (1 red, 1 black) soldered on one end of the wire		
		b) Length of wire : 305-330 mm		
		c) Type of wire : Stranded		
		d) Gauge number : 20 - which is printed permanently on the insulation of the wire		
		15. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded box with storage slots for each item to help prevent glass breakage.		
		16. Must be free from breakage, cracks, chipped rims and sharp edges surface irregularities and other defects not stated herein		
		17. Must be able to show during an experiment on Electrical Conductivity of Solutions that electrolytes conduct electricity when the bulb lights up while non-electrolyte solutions did not conduct electricity when the bulb wont light up		
		18. With Operations Manual and Assembly Guide in English		
		19. With sample activity guide/sheets/Teacher's Manual in English		
		20. For numbers #18 to 19; the technical specifications a-e must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 3.0 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		21. Comes with a brand marked permanently onto the box		
		22. Must be brand new		
4	Laboratory Hot Plate with magnetic stirrer	Functional Specifications: a)Used to heat samples, glasswares and its contents, solutions, and substances uniformly with constant stirring , or b) boiling of water c) to sterilize glasswares and other materials uniformly, d) dissolving buffers and reagents with constant stirring e) preparing media,		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		f) concentrating samples and		
		g) to prepare chemicals used in scientific research.		
		Performance Specifications: Must be able to		
		a) heat samples, glasswares and its contents, solutions, and substances with constant stirring		
		b) boiling of water		
		c) to sterilize glasswares and other materials uniformly		
		d) dissolving buffers and reagents with constant striring		
		e) preparing media,		
		f) concentrating samples and		
		g) to prepare chemicals used in scientific research		
		h) Agitates the liquid to speed up the reaction and mixes components (solid and liquid to get homogeneous mixtures		
		Design Specifications:		
		1. Type : Digital		
		2. Top plate material : Ceramic coated aluminum plate (chemical-acid-base resistant)with the following dimensions:		
		a) Length : 178-220 mm		
		b) Width: 178-220 mm		
		c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the top plate is ceramic coated aluminum (chemical-acid-base resistant), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		3. Color of top plate : White		
		4. Color of body: Midnight blue/any color		
		5. Comes with temperature probe, probe holder, support rod, and stir bar		
		a) With accurate internal temperature sensor and external temperature probe		
		b) With plug/holder/ clamp/clip for temperature probe		
		c) With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.		
		d) With Stand rod with the following dimensions:		
		i) Material: Stainless steel		
		ii) Diameter (Φ):12-14 mm		
		iii) Length: Φ450-452 mm		
		iv) With PTFE Cross Spinplus magnetic stirrer bar		
		Dimensions: 1 x 9/16 inches (25.4 x 14.3 mm)		
		Color: White		
		6.Maximum Operating Temp.: 380 °C minimum		
		7. Temperature accuracy : ± 0.3 °C at set temperature		
		8. Stirring capacity : 5-20 Liters		
		9. Speed : 80-1500 rpm		
		10. Control resolution : 5 rpm		
		11. Temperature range and accuracy : Max 380 °C minimum		
		12. Heating power consumption : 600 W minimum		
		13. With digital LCD with backlight display		
		14. With digital feedback controller with joggle shuttle switch(Turn + Push)		
		15. With over temperature protection		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		16. With power cord, AC Adapter Quick and easy adjustment knob		
		17. Control: Quick and easy adjustment knob		
		18. With safety LEDs to indicate when heating function has been activated		
		19. Power: 220-240 V AC, 50/60 Hz, 800 W minimum		
		20. With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.		
		21. With quick adjustment knob and LED indicator		
		22. Includes English User's Manual which consists of the Operating Manual		
		23. With Activity Sheets/Teacher's Manual in English		
		24. For numbers #22-23; the technical specifications (a-e) must be strictly followed:		
		a) For Contents/ List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 minimum thickness plastic laminated Assembly Guides that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size: A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size: 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		25. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein		
		26. Must be packed in polystyrene and enclosed in a sturdy box		
		27. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format.		
		b. Shall be saved in a USB 3.0 Flash Drive.		
		c. Shall have a High-Definition resolution of at least 1080p.		
		d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.		
		e. Shall comply an aspect ratio of 4:3.		
		f. Shall have a cover video pane containing the equipment name and a video pane for each video content.		
		g. The video, voiceover (audio), and subtitle shall be in sync.		
		h. The training video shall cover all the above requirement (video contents).		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		28. Comes with a brand marked permanently on the box		
		29. Must be brand new		
5	Microscope, Digital	Functional Specifications: Used to focus specimen with the image viewed through the LCD screen.		
		Performance Specifications: Must be able to show the structure of subcellular organelles.		
		Design Specifications:		
		1. Nosepiece: Triple with 4x, 10x, 40x achromatic objectives and click stop		
		2. Magnification: 40x, 100x, and 400x (1600x with digital zoom)		
		3. Has full color (minimum) 3.5" TFT LCD screen with onboard software		
		4. Digital Camera: 5 MP CMOS sensor (minimum) as indicated in the manufacturer's manual		
		5. With built-in top and bottom LED illumination sources		
		6. 220V; 50/60 Hz power source		
		7. Battery options 4AA		
		8. Stage: (minimum) 88 mm x 88 mm; fully mechanical with metal clips;		
		9. Six position filter wheel		
		10. With 180° rotating LCD screen		
		11. Combination of smooth-finished metal and plastic parts		
		12. Supports up to 32G Memory size		
		13. AC Plug (power) SD Card (32G max) Port(s) In		
		14. With TV/AV output for display on large monitors for classroom or at the laboratory		
		15. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		16. Warranty on parts and labor: 2 years		
		17. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		18. Manual details:		
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm)		
		b. Size: (minimum) 165 mm x 215 mm Fold (minimum) 330 mm x 215 mm Spread		
		c. Binding: Saddle Staple		
		d. Font type: Arial and Font size (minimum): 10		
		e. Pictures shall be in full color		
		19. Accessories included:		
		a. Minimum 1 GB micro SD card		
		b. USB 2.0 Cable (data transfer)		
		c. Dust Cover		
		d. Rugged canvass carrying case with shoulder strap		
		e. Five (5) prepared slides		
		f. AC Adapter with 4 International Plugs		
		g. AV out cable for viewing on a TV or projector		
		20. Must be branded and brand new. The brand shall be permanently mark on the item.		
6	Soil pH, Moisture, Sunlight Meter	Functional Specifications: Used to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time		
		Performance Specifications: Should be able to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time		
		Design Specifications:		
		1. Compose of two electrodes, 7 inches -10 inches long		
		2. pH/ Moisture/ Sunlight Switch		
		3. pH Range: 3.5 - 8 pH (3.5-6.5 Acidic, 7-8 Alkaline)		
		4. Moisture Range: 1-10 (1-3 Dry; 4-6 Normal; and 7-10 Wet)		
		5. Light Range: 0 - 2000 lux (0-200 Low, 200-500 Low+, 500-1000 Normal, and 1000-2000 High)		
		6. With English User's Manual that includes:		
		a. Operation Guide		
		b. Procedure on the proper use, handling and storage.		
		c. Student Activity in using the item.		
		7. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		8. Brand must be permanently marked on the item.		
7	Telescope, Astronomical (Reflecting)	Functional Specifications: Used to enhance the appearance of details of celestial objects not visible to the unaided eye		
		Performance Specifications: Should be able to enhance the appearance of details of celestial objects not visible to the unaided eye		
		Design Specifications:		
		1. Equatorial Reflector Telescope Features		
		a) 112-114mm Aperture		
		b) Focal Length: 900-1000 mm		
		c) Rack-and-Pinion Focuser		
		d) Equatorial Mount with manual control cables		
		e) Setting Circles		
		f) Latitude Control with Scale		
		g) Two Eyepieces - 8.5-9.5mm and 23-27mm diameter each, multi coated		
		h) Tripod <ul style="list-style-type: none"> i. Maximum Height: 125 cm ii. Adjustable-height iii. Aluminum-alloy legs iv. Tray to hold eyepieces, lights, and accessories v. Spiked feet add stability on uneven/soft ground 		
		2. With English User's Manual that includes Operation Guide and Guide on how to assemble the model.		
		3. With permanent marking at the bottom of each eyepiece stating the model, focal length, and diameter.		
		4. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		<ul style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment 		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		5. Must be branded and permanently marked on the item		
LOT 5: MATHEMATICAL MANIPULATIVES (MI-LOT 5)				
1	Algebra Tile Set, plastic	Functional Specifications: Used to demonstrate algebraic concept up to second degree polynomial.		
		Performance Specifications: Must be able to represent mathematical expressions and equations to introduce and foster algebraic concepts, including adding and subtracting polynomials, factoring trinomials, and the Zero Principle.		
		Design Specifications:		
		1. Algebra Tiles should come in a set of 30 that includes the following:		
		a. 6 pcs of Square Tile (Squared Variable Tile) about 89mm x 89mm x 1mm (minimum) in size and color blue		
		b. 16 pcs of Long Tile (Variable Tile) about 89mm x 21mm x 1mm (minimum) in size and color green		
		c. 24 pcs of Ones Tile (Constant Tile) about 21mm x 21mm x 1mm (minimum) in size and color yellow		
		Note: Each kind of tile should have RED back color to denote the Negative side of the tiles.		
		2. Made of plastic and has no sharp edges.		
		3. Must be stored in a plastic storage box with a capacity to store 1,300 pcs of Algebra Tiles.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the plastic storage.		
2	Base Ten Blocks	Functional Specifications: Used to demonstrate abstract mathematical concept of the number system such as one-to-one correspondence, place value, and basic addition and subtraction		
		Performance Specifications: Must be able to demonstrate a number's value and place value and vice versa.		
		Design Specifications:		
		1. Made of plastic, smooth surface and edges, and free from toxic materials		
		2. The set includes 100 units (1 cm x 1 cm x 1 cm [minimum]), 10 rods (1 cm x 1 cm x 10 cm [minimum]), 10 flats (1 cm x 10 cm x 10 cm [minimum]), and 1 cube (10 cm x 10 cm x 10 cm [minimum]).		
		Note: Each block should have distinct color from each other (e.g.: Unit - Red, Rod - Yellow, Flat - Green, Cube - Blue).		
		3. Comes with a plastic container with cover to accommodate all the items.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the plastic container.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
3	Beads	Functional Specifications: Used to reinforce counting, sorting, patterning and sequencing.		
		Performance Specifications: Must be able to scaffold learners in counting and grouping of numbers, colors, patterns, etc.		
		Design Specifications:		
		1) Bead Material: Plastic, spherical, smooth surface		
		2) With a hole that passes through the center		
		3) Bead diameter: 15 mm to 18 mm		
		4) Assorted color, at least 5 colors consisting of 60 pieces each color.		
		5) Comes with a plastic transparent storage container with cover		
		6) The items shall be free from toxic materials.		
		7) Comes with nylon string of 5-6 meters long that fit loosely to beads hole		
4	Circle Area Demonstrator	Functional Specifications: Used to demonstrate area of a circle.		
		Performance Specifications: Performance: Must be able to show/demonstrate derivation of circle's area and how dimensions of a parallelogram is related to it.		
		Design Specifications:		
		1. Material: Plastic		
		2. Circle Diameter: 196 mm (minimum) - Each half comes in different colors		
		3. Thickness: 5 mm (minimum)		
		4. Dissectible into at least 12 sectors		
		5. Comes with base for mounting the circle and the sectors.		
		6. Shall be free from toxic materials.		
5	Compass, Drawing, student type	Functional Specifications: Used to draw/construct arcs, semi-circles and circles.		
		Performance Specifications: Must be able to draw/construct arcs, semi-circles and circles.		
		Design Specifications:		
		1. Compass, two legs, stainless steel;		
		2. Length: 120mm - 150mm;		
		3. With pencil adaptor attached at or integrated on one end of one of the legs. The said adaptor must be able to adapt, also, to any kind of pencil available in the local market;		
		4. Stainless Steel: Well-polished and smooth;		
		5. Comes with transparent plastic case or box; and		
		6. Brand must be permanently printed on the case.		
6	Cuisenaire Rods, set of 5	Functional Specifications: Used to provide an interactive, hands-on way to explore mathematics and learn mathematical concepts, such as the four basic arithmetical operations, working with fractions and finding divisors.		
		Performance Specifications: Must be able to demonstrate four fundamental operations, part-to-whole concept, decimals and other concepts related to number sense and measurement.		
		Design Specifications:		
		1) Made of hard, smooth finish plastic materials.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		2) One (1) set is composed of 74 cuisenaire rods of different colors.		
		3) Each color represents a specific rod length.		
		4) Rod Lengths are: 1cm -white, 2cm - red, 3cm - gray, 4cm - pink, 5cm -yellow, 6cm - green, 7cm - dark green, 8cm - brown, 9cm - blue, and 10cm - orange.		
		5) Comes in a plastic storage container with cover that accomodates 5 sets of cuisenaire rods.		
		6) The item shall be free from toxic materials.		
		7) Brand must be permanently printed on the case.		
7	Elapsed Time (Clock) Set	Functional Specifications: Used to demonstrate time and other related concepts.		
		Performance Specifications: Must be able to represent and demonstrate time using hour hand and minute hand.		
		Design Specifications:		
		1. A set includes:		
		a. Two Twelve (12) hour demonstration clock, magnetic		
		b. Segmented timeline, 24-hour timeline (AM and PM) which makes up of 4 segments		
		c. Removable guide numbers		
		d. Start and End arrows		
		2. Dial diameter measures 24-26 cm		
		3. The hour number must be printed in Hindu Arabic numeral and with corresponding minute(s) number in the same numeral format.		
		4. The item shall be free from toxic materials.		
		5. Brand must be permanently printed on the case.		
8	Geoboard, 11 x 11	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons.		
		Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.		
		Design Specifications:		
		1. Double sided geoboard - square pattern on one side (11 x 11), circle on the other;		
		2. Made of plastic material and comes in any color;		
		3. The surfaces and edges must be smooth, no warps, must sits flat when laid on the table;		
		4. Board Dimensions (W x L): 229 mm x 229 mm (minimum);		
		5. Edging Height (all sides): 6 mm from the board (minimum);		
		6. Board and Edging Thickness: 3 mm (minimum);		
		7. Array Pin Diameter: 3 mm (Minimum);		
		8. Array Pin Height: 5 mm (Minimum);		
		9. Comes with a transparent plastic case;		
		10. Comes with Instruction Manual in English with illustrations;		
		11. Comes with assorted size and color rubber bands (25 pcs); and		
		12. Brand must be permanently printed on the case		
9	Geoboard, 5 x 5	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to move from one place to another and to clearly show illustrations that do not exceed from 1 meter vertically and 1.2m horizontally guided with lines with 20mm spacing (horizontally and vertically).		
		Design Specifications:		
		1. Mobile Magnetic Ghost Grid Whiteboard;		
		2. Material: Painted Steel		
		3. Frame: Aluminum, 1" edging;		
		4. Surface Material: Magnetic Painted Steel;		
		5. Grid Pattern: 2" x 2", ghots grid;		
		6. Full Dimensions: 74-75"W x 23-24"D x 69-70"H;		
		7. Board Dimensions: 72-73"W x 40-41"H;		
		8. Base Dimensions: 74-75"W x 23-24"D;		
		9. Tray Style: Full length		
		10. Casters: 4 pieces, 2-inch casters, two with locking brakes;		
		11. Must be properly packed using shipping carton.		
12	Linking Cubes	Functional Specifications: Used to assist with the understanding of mathematical concepts		
		Performance Specifications: Must be able to interlock together to build various shapes and structures		
		Design Specifications:		
		1) Linking plastic cubes:		
		a. Dimension: 1 cm x 1 cm x 1 cm (minimum)		
		b. Material: Non-toxic plastic that comes in assorted colors (5 colors with at least a minimum of 100 pieces per color)		
		c. With interlocking feature for connecting the cubes.		
		2) Comes with plastic transparent storage bucket with cover.		
		3) Fitting is push fit which can be assembled or disassembled without extra effort.		
		4) Shall be free from toxic materials.		
		5. Brand must be permanently marked on the storage.		
13	Model, Basic 3D Geometrical Collapsible	Functional: Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons.		
		Performance: Must be able to demonstrate geometrical relationships between polygons (2D) and polyhedrons (3D) in terms of deriving formula on surface area and volume.		
		Design Specifications:		
		1. Set includes 12 solids made of clear plastic with rounded corners and edges, and 12 folding nets in 5 or 6 colors made from soft plastic to fit inside the corresponding solids:		
		2. Base size of solids: 7.8 to 10.5cm		
		Height of solids: 9.5 to 10.5 cm		
		3. Pairs of solid prism and pyramid shall of the same base and height the following:		
		a,b) Cube and Square pyramid		
		c,d) Cylinder and Cone		
		e,f) Triangular prism and Triangular pyramid		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		g,h) Rectangular prism and Rectangular pyramid		
		i,j) Pentagonal prism and Pentagonal pyramid		
		k,l) Hexagonal prism and Hexagonal pyramid		
		4. With activity guide.		
		5. Comes with a plastic transparent storage container with cover that can accommodate all the solids and the activity guide.		
		6. Shall be free from toxic materials.		
14	Model, Basic 3D Geometrical Solids	Functional Specifications: Used to represent basic three-dimensional figures.		
		Performance Specifications: Must be able to demonstrate geometrical concepts related to properties of geometrical solids.		
		Design Specifications:		
		1.) At least 17 types of Geometrical Solids which includes these core shapes:		
		a) Cube: 9.5-10.5cm x 9.5-10.5cm x 9.5-10.5cm		
		b) Cone: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		c) Cylinder: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		d) Hexagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		e) Hexagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		f) Pentagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm		
		g) Pentagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm		
		h) Rectangular prism: 9.5-10.5cm x 5-6cm x 9.5-10.5cm		
		i) Square pyramid: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		j) Triangular prism: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm;and		
		h) Triangular pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm		
		i) Sphere: Diameter of Great Circle = 9.5-10.5cm		
		j) Hemisphere: Diameter of Great Circle = 9.5-10.5cm		
		k) Square prism: 9.5-10.5cm x 5-5.5cm x 5-5.5cm		
		l) Small cube: 5-5.5cm x 5-5.5cm x 5-5.5cm		
		m) Small Triangular Prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		n) Small Cylinder: Height = 9.5-10.5cm; Base diameter = 5-6cm		
		3) Made of hard plastic		
		4) Comes in a transparent plastic container with cover to accommodate the 17 or more types of geometric solids.		
		5) Surface finish is smooth on all items.		
		6) Brand must be permanently printed on the case.		
15	Pattern Blocks, 250 pcs/set	Functional Specifications: Used to explore mathematical concepts, including congruence, similarity, symmetry, area, perimeter, patterns, functions, fractions, and graphing		
		Performance Specifications: Used to demonstrate different kinds of polygons.		
		Design Specifications:		
		1. One (1) set of pattern blocks contains a total of 250 pieces of six geometrical shapes and six colors - 25 each of hexagons and squares; 50 each of trapezoids, triangles, parallelograms, and rhombi.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		2. Made of smooth surface plastic material.		
		3. Minimum thickness: 5 mm		
		4. Comes with a plastic transparent storage container with cover.		
		5. The items shall be free from toxic materials.		
		6. Brand must be permanently marked on the storage container.		
16	Pentominoes	Functional Specifications: Used to develop spatial thinking		
		Performance Specifications: Must be able to demonstrate concepts pertaining to perimeter and area using the 12 kinds of 5-squared geometric shape.		
		Design Specifications:		
		1. Geometry puzzle consists of 12 pentominoes, each are made up of 5 equal-sided squares connected edge-to-edge. Dimension of square is 2.54cm x 2.54cm (minimum).		
		2. Twelve (12) pentominoes are classified as the letters F, I, L, N, P, T, U, V, W, X, Y, and Z; each are made up of sturdy plastic. Comes in assorted colors that are free from toxic materials.		
		3. Comes in set of 6 equivalent to 72 pieces (minimum) contained in a plastic storage box.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the storage.		
17	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	Functional Specifications: Used to represent integers and demonstrate fundamental operations on integers.		
		Performance Specifications: Must be able to demonstrate/represent set of numbers, skip counting and integers; perform fundamental operations on integers.		
		Design Specifications:		
		1) Material: Hard Plastic		
		2) Minimum of 200 pieces per set (double-sided color)		
		3) Must have smooth surface and edges		
		4) Chip's diameter: 22mm (minimum)		
		5) Chip's thickness: 1mm (minimum)		
		6) Comes with a transparent plastic container with cover		
		7) Shall be free from toxic materials.		
		8) Brand must be permanently marked on the item.		
18	Probability Kit	Functional Specifications: A set of mathematical manipulative used to demonstrate different concept-formation activities in probability.		
		Performance Specifications: Must be able to demonstrate probability concepts using cards, counters, dice, spinners, coins, bills and/or combination of these mathematical manipulatives.		
		Design Specifications:		
		1. Demonstrate probability, random and selective sampling.		
		2. Class kit, at least 180 pcs in a box for large group or individual learning.		
		Consist of the following:		
		a) 30 combination of activities and teacher demonstration on cards		
		b) 52 pcs (1 set) playing cards		
		c) 9 pcs different spinners;		
		d) 50 pcs coins;		
		e) 15 pcs polyhedral number dice;		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		f) 3 pcs dot dice;		
		g) 30 two-color (back-to-back) counters or red and yellow chips;		
		h) 5 pcs coin dice		
		i) 8 pcs number dice		
		3. Comes with transparent plastic container with cover.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the container.		
19	Tangrams, set of 30	Functional Specifications: Used to introduce spatial relationships		
		Performance Specifications: Must be able to use as an aid in developing mathematical concepts such as area, perimeter and patterns.		
		Design Specifications:		
		1) Tangram includes seven geometric shapes made up of five triangles (two small triangles, one medium triangle, and two large triangles), a square, and a parallelogram that are distinct in color.		
		2) The three different-size Tangram triangles are all similar, right isosceles triangles. Thus, the triangles all have angles of 45°, 45°, and 90°, and the corresponding sides of these triangles are proportional.		
		3) All the angles of the Tangram pieces are multiples of 45—that is, 45°, 90°, or 135°, and that the small Tangram triangle is the unit of measure that can be used to compare the areas of the Tangram pieces.		
		4) Material: Plastic that are free from toxic materials.		
		5) The size of the largest square that the 7 tangram pieces can form is 114 x 114 mm (minimum) with thickness of 7mm (minimum).		
		6) In this set, there is at least 6 distinct color.		
		7) Comes with a sturdy plastic that stores set of 30 tangram (210 pieces) and free from toxic materials.		
		8) Shall be free from toxic materials.		
		9) Brand must be permanently marked on the item.		
LOT 9: CHEMICALS (MI-LOT 9)				
1	Benedict's Solution, 100ml/bottle	Functional Specifications: Used to test for levels/ traces of simple reducing sugars		
		Performance Specifications: Must be able to test for the presence (levels of traces) of reducing sugars such as glucose.		
		A positive test with Benedict's reagent is shown by a color change from clear blue to:		
		a) blue solution - 0 g % (no trace of simple reducing sugar)		
		b) green precipitate- 0.5 to 1.0 g % (traces of simple reducing sugar)		
		c) yellow precipitate- 1.0-1.5 g % (low simple reducing sugar)		
		d) orange precipitate - 1.5 to 2.0 g % (moderate simple reducing sugar)		
		e) brick-red precipitate - greater than 2.0 g % (high presence of simple reducing sugar)		
		Design Specifications:		
		1. Features an aqua blue liquid		
		2. Chemical Formula: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} + \text{Na}_2\text{CO}_3 + \text{Na}_2\text{C}_6\text{H}_5\text{O}_7$		
		3. Capacity: 100 mL		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
2	Boric Acid, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify boron or its specific unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as a substrate in Flame test to visually identify boron, or its ion based on the characteristic color it emits on the Bunsen flame. Boric acid emits a bright green color which indicates the presence of boron or its ion		
		Design Specifications:		
		1. Features a colorless or white, odorless and crystalline solid		
		2. Chemical formula : H3BO3		
		3. Mass/bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS(Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
3	Bromothymol Blue	Functional Specifications: Used as an indicator of dissolved Carbon dioxide.		
		Performance Specifications: Must be able to show the effect of changes in abiotic factors on the ecosystem.		
		Design Specifications:		
		1. Color: Dark Blue/blue-black		
		2. Concentration range : 0.01% - 0.04% aqueous solution (as indicated in the product label)		
		3. Capacity: 100 mL		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with the chemical name, concentration, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Must be branded and brand new. The brand shall be printed on the product label.		
4	Calcium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify calcium or its ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Used as a substrate in Flame test to visually identify calcium element, or an unknown metalloid ion based on the characteristic color the chemical emits on the Bunsen flame. Calcium chloride emits an orange red/yellowish red color which indicates the presence of the calcium ion		
		Design Specifications:		
		1. Features a white powder, crystals or granules		
		2. Chemical Formula : CaCl ₂		
		3. Mass per bottle : 100 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and with SDS (Safety Data Sheet)		
		9. With brand printed permanently on the product label		
		10. Must be brand new		
5	Copper Sulfate, CuSO₄, 100 grams / bottle	Functional Specifications: Used as : a) an oxidizing agent or oxidant and is reduced in a spontaneous [chemical (redox) reaction decreasing its oxidation state with metals above it, like zinc, in the Activity Series of Metals]		
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame .		
		Performance Specifications: Must be able to		
		a) oxidize the other reactant of a spontaneous redox reaction by gaining electrons reducing its oxidation state with metals above it, like zinc, in the Activity Series of Metals, resulting in copper in the free state and the salt of the metal being displaced.		
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame. Copper sulfate emits blue green color on the Bunsen flame.		
		Design Specifications:		
		1. Features a blue, odorless crystalline solid		
		2. Chemical formula : CuSO ₄		
		3. Mass per bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. With brand printed permanently on the product label		
		10. Must be brand new		
6	Gentian Violet, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.		
		Performance Specifications: Must be able to enhance animal cell image as to presence or absence of some organelles.		
		Design Specifications:		
		1. Capacity (minimum): 100 mL per bottle		
		2. Color: Blue-violet/dark purple		
		3. With Safety Data Sheet		
		4. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		
		6. Must be branded and brand new. The brand shall be printed on the product label.		
7	Iodine Solution, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.		
		Performance Specifications: Must be able to enhance plant cells as to presence or absence of some organelles.		
		Design Specifications:		
		1. Capacity: 100 mL per bottle		
		2. Color: Light orange-brown		
		3. Alternate name: Lugol's Solution		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		
		7. Must be branded and brand new. The brand shall be printed on the product label.		
8	Magnesium Ribbon, 25 grams, 1 roll	Functional Specifications: Used as a reactant and is ignited over a flame to demonstrate a highly exothermic combustion reaction		
		Performance Specifications: Must be able to produce a highly exothermic combustion reaction resulting in a blinding white light and intense heat when ignited over a flame. A white powdery solid, magnesium oxide is produced		
		Design Specifications:		
		1. Features a relatively soft, lightweight solid metal		
		2. Color : Shiny silvery gray--white		
		3. Chemical formula : Mg		
		4. Form : Solid (ribbon)		
		5. Mass per roll : 25-27 g		
		6. Number of roll : 1 roll		
		7. Comes in original plastic packing		

Detailed Specification

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		8. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		9. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		10. Expiration dates should be at least two years		
		11. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		12. Comes with a brand printed permanently on the product label		
		13. Must be brand new		
9	Manganese Dioxide, 50 grams / bottle	Functional Specifications: Used as a catalyst to demonstrate decomposition reaction of hydrogen peroxide and observe its effect on the rate of chemical reaction		
		Performance Specifications: Must be used as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water and to demonstrate its effect on the rate of chemical reaction		
		Design Specifications:		
		1. Form: Solid powder		
		2. Color : Brown-black solid/ blackish or brown solid		
		3. Chemical formula : MnO ₂		
		4. Mass per bottle : 50 g		
		5. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.		
		7. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		8. Expiration dates should be at least two years		
		9. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		10. Comes with a brand printed permanently on the product label		
		11. Must be brand new		
10	Microscope's Immersion Oil, 100mL/bot	Functional Specifications: Used to increase the resolving power of the microscope's 100x objective.		
		Performance Specifications: Must be able to give a clear and very distinct image of the specimen.		
		Design Specifications:		
		1. Capacity: 100 mL/bottle		
		2. Non-drying, clear and transparent		
		3. With Refractive index: 1.515 - 1.518 (as indicated in SDS, product label or certificate)		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.		

Detailed Specification

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		7. Must be branded and brand new. The brand shall be printed on the product label.		
11	Phenolphthalein, 100 grams/bottle	Functional Specifications: Used as an indicator to effect a color change to distinguish an acid from a base and in performing acid base titration		
		Performance Specifications: Must be used as an indicator to distinguish and acid from a base and in performing acidbase titration, as it indicates the change in pH by changing its color , the results vary:		
		a) For a base, it gives a pink color		
		b) For an acid, it is colorless		
		Design Specifications:		
		1. Features a white to cream, odorless solid powder		
		2. Chemical formula : C ₂₀ H ₁₄ O ₄		
		3. Mass per bottle : 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7.Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
12	Potassium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify a specific element or an unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as :		
		a) a substrate in Flame test to visually identify potassium element, or its ion based on the characteristic color it emits on the Bunsen flame.		
		Potassium chloride emits a light lilac color which indicates the presence of the potassium ion		
		b) as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water to demonstrate the effect of catalyst on the rate of chemical reaction		
		Design Specifications:		
		1. Features a white crystalline solid		
		2. Chemical formula : KCl		
		3. Mass per bottle: 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		

Detailed Specification

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		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
13	Potassium Iodide, 100 grams / bottle	Functional Specifications: Used as : a) a substrate in Flame test to visually identify potassium or its ion based on the characteristic color it emits on the Bunsen flame		
		b) a catalyst to demonstrate decomposition reaction of hydrogen peroxide to form water and oxygen		
		Performance Specifications: Must be : a) used as a substrate in Flame test to visually identify potassium , or its ion based on the characteristic color the chemical emits on the Bunsen flame. Potassium iodide emits a lilac color which indicates the presence of the potassium ion		
		b) able to undergo a spontaneous decomposition of hydrogen peroxide into bubbles of oxygen gas and water		
		Design Specifications:		
		1. Features white granules and crystals solid		
		2. Chemical formula: KI		
		3. Mass per bottle: 100 g		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
14	Sodium Hydroxide (Lye), 250 grams/bottle	Functional Specifications: Used : a) to differentiate an acid from a base		
		b) as a titrant added from a base burette in acid base titration		
		Performance Specifications:		
		a) Must turn pink when added with drop/s of phenolphthalein and be able to neutralize an acid to form salt and water		
		b) In acid-base titration, the sodium hydroxide is used as a titrant added from an base buret to a known quantity of the analyte (the unknown solution) until the reaction is complete. Knowing the volume of titrant added allows the determination of the concentration of the unknown using the formula : $N_a = N_b V_b / V_a$		
		c) pH value : pH 13-14		
		Design Specifications:		
		1. Features a white semi-transparent odorless hygroscopic solid		
		2. Chemical formula : NaOH		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		3. Mass per bottle : 250 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
15	Yeast, active dry, 100 grams / bottle	Functional Specifications: Used to break down some of the starch and sugar in the mixture to produce more yeast cells and carbon dioxide gas.		
		Performance Specifications: Must be able to illustrate asexual type of reproduction.		
		Design Specifications:		
		1. Active dry yeast in granules		
		2. Color: Ivory light brown		
		3. Capacity: 100 grams per bottle		
		4. With Safety Data Sheet		
		5. The chemical must be in original plastic packing with threaded chemical seal pack bottle.		
		6. Properly labeled with chemical name, the name of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date. Expiration shall be at least two years.		
		7. Must be branded and brand new. The brand shall be printed on the product label.		
16	Zinc Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify zinc or its ion based on the characteristic color it emits on the Bunsen flame.		
		Performance Specifications: Must be used as a substrate in Flame test to visually identify zinc element or its ion based on the characteristic color it emits on the Bunsen flame. Zinc chloride emits a blue green to pale green/colorless color which indicates the presence of the zinc ion		
		Design Specifications:		
		1. Features a white crystalline/granular solid powder		
		2. Chemical Formula : ZnCl ₂		
		3. Mass per plastic bottle: 100 grams		
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		9. Comes with a brand marked permanently on the product label		
		10. Must be brand new		
17	Zinc metal, pellets/mossy, 100 grams / bottle	Functional Specifications: Used as a reducing agent to reduce the other reactant of a single displacement (redox reaction) with metals above it in the Activity Series of Metals		
		Performance Specifications: Must be able to reduce the other reactant of a single displacement (redox) reaction with metals above it in the Activity Series of Metals, , like zinc, to produce salt and the displaced metal in its free state		
		Design Specifications:		
		1. Features a bluish white, or as a grey powder/pellets/mossy solid		
		2. Chemical Formula : Zn		
		3. Mass per plastic bottle : 100 grams		
		4. Comes in original screw type plastic packing, with threaded chemical seal pack bottle.		
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning		
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.		
		7. Expiration dates should be at least two years		
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)		
		9. Comes with a brand printed permanently on the product label		
		10. Must be brand new		
LOT 10: GLASSWARES AND LAB TOOLS (MI-LOT 10)				
1	Beaker, borosilicate, 250 mL	Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100°C for normal, standard use service		
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100°C for normal, standard use service		
		Design Specifications:		
		1. Features a cylindrical container with straight sides, a flat bottom, with a beaded rim and with a small spout (or "beak") to aid in pouring.		
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:		
		Outside diameter: 68-70mm		
		Height: 90-92 mm		
		Thickness: 1.5 mm to 2.0 mm		
		3. Type: Griffin, low form		
		4. Features an easy-pour spout		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/markings enamelled onto the glass, which includes the following:		
		a) Capacity: 250 mL		
		b) Manufacturer's name or trademark		
		c) With large white marking spot		
		d) With double graduated metric scale		
		d1) With marking graduation to fill: starts at 25 mL in 25mL increments		
		d2) With marking graduation to empty: starts at 0 mL in 200 mL increments		
		d3) Graduation interval: 25 mL		
		d4) Graduation range: 25 mL to 200 mL		
		6. Must be able to stand solidly/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Must be able to withstand heating of water up to 150 deg C		
		9. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box		
		10. Comes with a brand enamelled permanently onto the glass		
		11. Must be brand new		
2	Beaker, borosilicate, 50 mL	Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100 °C		
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100 °C		
		Design Specifications:		
		1. Features a cylindrical container with straight sides, a flat bottom with a beaded rim and a small spout (or "beak") to aid in pouring		
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:		
		Outer diameter: 40-42 mm		
		Height: 55-57 mm		
		Thickness: 1.5 to 2.0 mm		
		3. Type: Griffin, low form		
		4. Features an easy-pour spout		
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/ markings enamelled onto the glass, which includes the following:		
		a) Capacity: 50 mL		
		b) Manufacturer's name or trademark		
		c) With large white marking spot		
		d) With single graduated metric scale		
		d1) With marking graduation to fill: starts at 10 mL in 10 mL increments		
		d2) Graduation interval: 10 mL		
		d3) Graduation range: 10 mL to 40 mL		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		6. Must be able to stand solidly/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Must be able to withstand heating up water up to 150°C		
		9. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box.		
		10. Comes with a brand enamelled permanently onto the glass		
		11. Must be brand new		
3	Burette, 10 mL capacity (acid)	Functional Specifications: Used to hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base in acid-base titration to determine unknown concentration of base		
		Performance Specifications: Must hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base (with color change from pink to colorless when end point is reached) in acid-base titration to determine unknown concentration of base		
		Design Specifications:		
		1. Features a long,vertical cylindrical glass tube with a volumetric graduation on its full length,with a leak-free plastic stopcock at its lower end and a tapered capillary tube at the stopcock's outlet.		
		2. Material : Clear, transparent, smooth, bubble-free high quality borosilicate glass, with the following dimensions: Length of burette: 510-620 mm		
		3. Fitted with grease-free interchangeable with 1.5 to 2 mm bore plastic leak-free stopcock plug. Material of of stopcock :PTFE key		
		4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters, inscriptions/ markings under normal conditions of use of the burettes, and large, easy-to-read numbers every 0.5 mL enamelled permanently onto the glass before the first graduation line which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 10 mL		
		c) Sub. Div. : 0.05 ml		
		d)Tolerance: ± 0.02 - ± 0.03 mL		
		e) Class: A		
		f) Unit of volume: mL		
		g) Ex		
		h) Reference Temp: 20°C-27°C		
		5. With Statement of Accuracy /Certificate of Accuracy) latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		6. Marked with an individual serial number (Serially Numbered)		
		7. Individually placed in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box.		
		8. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		9. Includes Operations Manual in English,		
		10. With Activity Sheets/Teacher's Manual in English		
		11. Comes with a brand enamelled permanently onto the glass		
		12. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
4	Burette, 10 mL capacity (base)	Functional Specifications: Used to hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity in acid-base titration to determine unknown concentration of acid		
		Performance Specifications: Must hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity (with color change from colorless to very faint pink when end point is reached) in acid-base titration to determine unknown concentration of acid		
		Design Specifications:		
		1. Features a long, graduated glass tube, with a leakage-free stopcock at its lower end and a tapered capillary tube at the screw type stopcock's outlet.		
		2. Material : Clear, transparent, bubble-free, smooth borosilicate glass, with the following dimensions:		
		a) Length of burette: 444.5-520 mm		
		3. With PTFE (screw-thread type/needle valve-Rotaflow leak-proof plastic) stopcock		
		4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters and inscriptions with large, easy-to-read numbers every 0.5-1.0 mL subdivisions enamelled permanently onto the glass, before the first graduation line, which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 10 mL		
		c) Sub. Div. : 0.05 ml		
		d) Tolerance: 0.05 mL		
		d) Class: B		
		e) Unit of volume: mL		
		f) Ex		
		g) Reference Temp: 20°C-27°C		
		5. With machine Jet flow control which is made from thick walled capillary tubing which forms an integral part of the burette shall have no cavity at the join likely to trap air bubbles.		
		6. With Statement of Accuracy /Certificate of Accuracy) latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		7. Marked with an individual serial number (Serially Numbered).		
		8. Individually placed in bubble wrap, enclosed in polystyrene and packed in a padded sturdy box		
		10. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		11. Includes Operations Manual in English,		
		12. With Activity Sheets/Teacher's Manual in English		
		13. Comes with a brand enamelled permanently onto the glass		
		14. Must be brand new		
5	Burner, Alcohol, glass, 150 mL Capacity	Functional Specifications: Used to produce hot, consistent open flame for slow/gentle heating of glasswares and substances		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to produce hot, consistent open flame		
		a) for slow/gentle heating of glasswares and substances		
		b) can withstand prolonged heating without breaking		
		c) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test		
		d) bend a glass tubing		
		e) heat, to sterilize, to accelerate, and to trigger chemical reactions,		
		f) for combustion purposes and techniques		
		Design Specifications:		
		1. Features a globe-shaped body and flat base (bottom) with threaded mouth		
		2. Material : Sturdy, heavy walled, clear, transparent, smooth, bubble-free glass,		
		3. Capacity : 150 mL		
		4. With rust/corrosive-free wick holder permanently attached to a threaded base		
		a) Material of wick holder and cover/caps : Nickel- plated brass		
		b) Type of wick holder : Threaded		
		5. With one (1) pc cotton fiber/strand braided wick perfectly fitted to the wick tube		
		a) Material of wick : Cotton fiber/strand		
		b) Type of wick: Braided		
		c) Length of wick : 178-179 mm		
		d) Diameter : 5-6 mm		
		6. With shiny, smooth, and corrosion-free metal snuff/snap-on cover/ cap		
		7. With ten (10) pc replacement braided cotton fiber/strand wicks		
		8. Wrapped in paper, enclosed in bubble wrap and packed in a compartmentalized box		
		9. Must be free from rust, breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		10. Comes with a brand printed permanently onto the box		
		11. Must be brand new		
6	Burner, Bunsen	Functional Specifications: Used to :		
		a) produce single, hot, continuous, consistent open blue flame		
		b) for slow/gentle heating of glasswares and substances,		
		c) rapidly heat high-boiling liquids with low flammability like water		
		d) heat, sterilize/accelerate/ trigger chemical reactions,		
		e) for combustion purposes		
		Performance Specifications: Must be able to produce a single, hot, continuous, consistent open blue flame to:		
		a) visually determine the hottest part of the Bunsen flame		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		b) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test		
		c) bend a glass tubing		
		d) used as a heating medium to demonstrate distillation, as one of the simple separation techniques		
		e) slow/gentle heating of glasswares and substances		
		f) rapidly heat high-boiling liquids with low flammability like water		
		g) heat, to sterilize, to accelerate, and to trigger chemical reactions,		
		h) for combustion purposes and techniques		
		Design Specifications:		
		1.Type : Gas type with accessories		
		2. Features a long, hollow burner tube with stabilizer top and serrated inlet tube		
		3. Material for burner tube : Aluminum, with the following dimensions:		
		a) Diameter of burner tube: 11-12 mm diameter		
		b) Over-all height: 152-155 mm		
		4. With flame stabilizer		
		5. With threaded gas needle valve (located opposite to serrated inlet tube)		
		6. Material of base: Nickel-plated zinc-alloy		
		7. Must be able to stand solidly/is stable when placed on a level surface		
		8. Individually packed in a sturdy box		
		9. With User's Manual and Operations Guide in English		
		10. Comes with Activity Sheets with Teacher's Manual in English		
		11. For numbers #9 to 10; the technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) In 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		12. Must be free from rust, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein.		
		13. Comes with a brand printed permanently on the box		
		14. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
7	Cork Stopper # 5 (for Ø 16mm test tube)	Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware to prevent leaks, hazards and contamination to yield positive results during chemical reactions		
		Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware and to prevent leaks, hazards and contamination to yield positive results during chemical reactions		
		Design Specifications:		
		1. Features an extra Select Grade cylindrical with a tapered bottom end with fewer lenticels (crevices)		
		2. Material of cork : Elastic and near impermeable with the following dimensions:		
		a) Height : 22-22.5 mm		
		b) Top Ø : 15-15.5 mm		
		c) Bottom Ø: 13-13.5 mm		
		3. Number of cork stopper: #5		
		4. Must perfectly fit the 16 x 150 mm test tube		
		5. Must be free from defect of discontinuities in the cork tissue such as "lung", exfoliation, and insect, ant/worm galleries and all other defects not stated herein.		
		6. Packed in a resealable plastic bag		
		7. With brand printed permanently on the resealable plastic bag		
		8. Must be brand new		
8	Crucible with lid/cover	Functional Specifications: Used as a container to heat metals or other substances may be melted or subjected to very high temperatures		
		Performance Specifications: Must be able to contain elements, compounds, metals, organic compounds or other substances to be melted or subjected to very high temperatures to determine mass relationship in a chemical reaction		
		Design Specifications:		
		1. Features a high/tall form cylindrical crucible		
		2. Capacity : 30 mL		
		3. Material : Porcelain, with the following dimensions:		
		a) Height : 43-50 mm		
		b) Base diameter: 24-26 mm		
		c) Top diameter: 33-40 mm		
		4. Glazed inside and out, except outside bottom and rim.		
		5. With crucible cover completely glazed except for rim.		
		6. Must be able to stand solidly flat/is stable when placed on a level surface		
		7. Must be free from breakage, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein		
		8. Comes with a brand printed permanently in the compartmentalized sturdy box		
		9. Must be brand new		
9	Dish, Evaporating, 75 mL	Functional Specifications: Used to contain/hold substances and to heat chemical solutions gradually, driving off the water to leave residual chemical solute		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to contain/hold substances and to demonstrate evaporation, as one of the techniques in separating mixtures, by heating chemical solutions gradually, driving off the water to leave residual chemical solute		
		Design Specifications:		
		1. Features a deep form, broad, and wider at the top, with round bottom		
		2. Material : Porcelain, with the following dimensions:		
		a) Diameter : 80-82 mm		
		b) Height/depth : 30-35 mm high		
		3. Capacity: 75 mL		
		4. With pouring lip/spout		
		5. Must be free from breakage, cracks, chipped rims and sharp edges, other surfaceirregularities and other defects not stated herein.		
		6. Must be able to contain the salt solution for an experiment on evaporation		
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein.		
		8. Each dish is individually packed, wrapped in paper, and packed in a sturdy box		
		9. Comes with a brand printed permanently in the sturdy box		
		10. Must be brand new		
10	Distillation set-up: Condenser, Liebig-type	Functional Specifications: Used to condense the water vapor into its liquid state producing a distillate		
		Performance Specifications: Must be able to condense the water vapor into its liquid state producing a distillate, used in distillation, as one of the simple separation techniques		
		Design Specifications:		
		1. Features two concentric straight glass tubes, the inner one being longer and protruding at both extremities, surrounded by a water jacket with sealed inner tube and outer tube of an inner straight tube surrounded by an outer jacket tube, the cool water flows through the outer jacket to condense the vapor in the inner tube, having a better cooling performance than air condenser.		
		2. Material : Transparent, smooth, clear, bubble-free borosilicate glass, with the following dimensions:		
		a) Tubulation OD: 9-15 mm		
		b) Jacket OD : 40- 43 mm		
		c) Jacket length : 300-301 mm		
		d) Over-all Length: 458-460 mm		
		3. With the following permanent inscriptions and numbers permanently enamelled onto the glass:		
		a) Manufacturer's name or trademark		
		b) Ground cone and socket joint: 24/40		
		4. With sealed inner tube		
		5. With Standard Taper Outer and Inner Joints permanently enamelled onto the glass the glass		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. With a drip tip at the bottom		
		6. Accessories:		
		a) One (1) pc rubber stopper that will fit upper (inlet) tube		
		i) Number of rubber stopper : #3		
		ii) Number of hole : One (1) hole		
		iii) Diameter of hole : 5.0-5.5 mm		
		iv) Hardness : 40-45 Duro		
		b) Rubber tube		
		Material of rubber Hose : Non-tacky, Latex rubber tube with the following dimensions:		
		ii) Inner diameter : Ø 8.0-8.5 mm		
		iii) Outer diameter : Ø 12.0-12.5 mm		
		iv) Length : 3000-3005 mm long		
		v) Color of rubber tube : Amber		
		7. The glass is wrapped in bubble wrap, enclosed in a polystyrene and packed in a sturdy box while the rubber stopper /tube is placed in a resealable plastic bag.		
		8. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein		
		9. Must be able to produce a distillate during experiment on Distillation using this item as part of the whole set		
		10. Must have User's Manual in English on the installation, use and care, proper storage with repair and maintenance		
		11. With Activity Sheets/Teacher's Manual in English		
		12. For numbers #10 to 11; the technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		14. Must have a brand enamelled permanently onto the glass		
		15. Must be brand new		
11	Distillation set-up: Distilling Flask, borosilicate, 250ml,	Functional Specifications: Used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique		
		Design Specifications:		
		1. Features a long neck, a side arm that facilitates condensation, and a round bottom for uniform heating .		
		2. Material : Clear, transparent, bubble-free borosilicate glass with a beaded rim with the following dimensions:		
		a) Flask Height : 240-250 mm		
		b) Side Arm Length: 129-130 mm		
		c) Side arm : 76 to 78 mm below the top of the neck		
		3. With the following permanent inscriptions and numbers permanently enamelled onto the glass:		
		a) Capacity: 250 mL		
		b) Manufacturer's name or trademark		
		c) With permanent large white marking spot		
		4. Supplied with an accessory		
		a) rubber stopper that fits the mouth of the distilling flask		
		i) Hardness: 40-45 Duro		
		ii) Number of hole : One (1)		
		iii) Diameter of hole: 5-5.5 mm		
		5. Wrapped in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box		
		6. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein		
		7. Must be able to produce a distillate during an experiment on Distillation using this item as a part of the distillation setup		
		8. Must have a brand enamelled permanently onto the glass		
		9. Must be brand new		
12	Double burette clamp/holder	Functional Specifications: Used to hold and secure two burettes on a stand, so that each burette is fixed and more convenient for the experiment.		
		Performance Specifications: Must be used to hold and secure two burettes simultaneously on a stand, so that the burettes are fixed and more convenient to perform acid-base titration experiment to determine concentration of solutions.		
		Design Specifications:		
		1. Features a double Y-shaped or butterfly-shaped items which have spring action clamps.		
		2. Material of body: Die cast aluminum with chemical resistant white enamel finish,with the following dimensions:		
		Length range : 245-262 mm		
		Width range : 120-127 mm		
		Mounting hole diameter (□): 15-36 mm		
		3. Color of body : White enamel		
		4. Material of sleeves/jaws/grips : Vinyl or rubber for excellent grip		
		5. Color of sleeves/jaws/grips : Colored		
		Distance between sleeves/jaws/grips : 85 -120 mm		
		6. With 4 spring action clamps, 2 on each opening		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. With two separate adjusting knobs or squeeze clamping mechanism		
		8. Color of adjusting knobs : Colored		
		9. Mounts directly to standard support rod with built in hook connector.		
		10. The dual metal burette clamp supports burettes from 10-100 mL (10-100 cc).		
		11. They can be attached to support stand rods from 16 mm to 17 mm diameter		
		12. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		13. Comes with a brand marked permanently onto the body/box		
		14. Must be brand new		
13	Electrolysis Apparatus, student-type (Brownlee)	Functional Specifications: Used to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water.		
		Performance Specifications: Must be able to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water. Positive results occur:		
		a) When an ember in a stick is introduced onto the test tube with hydrogen gas, it pops.		
		b) If the gas is oxygen, the ember must glow more		
		Design Specifications:		
		1. Shape of Jar : Cylindrical container with a flat bottom, with a wide mouth and a small turned-out lip for pouring		
		2. Material of jar: Clear, transparent, smooth, and bubble-free borosilicate glass, with the following dimensions:		
		a) Diameter : 114-130 mm		
		b) Height : 127-160 mm		
		3. Capacity: 1000 mL		
		4. Comes with two (2) electrodes		
		a) Material of two electrodes: Platinum		
		b) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the electrodes, is platinum , to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		5. Comes with an acid-proof insulating support to hold the two binding posts (one red, one black)		
		6. Holder of two test tubes : Two (2) spring clips		
		7. With two (2) reusable test tubes with graduations		
		a) rimless		
		b) graduated from its bottom to top. Zero starts at bottom and 25- 27 mL on top/mouth of test tube		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		c) Material of test tubes : Borosilicate , clear, smooth, transparent and bubble-free reusable glass, free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein, with the following dimensions:		
		c1) Diameter: 18 mm		
		c2) Length : 150-151 mm long		
		c3) Capacity : 25-27 mL		
		d) With heavy uniform wall thickness, excellent heat resistance, round bottom glass		
		e) With permanent graduation lines of approx. volume and inscriptions in high contrast fine, clean, continuous and of uniform width, and in colored enamel.		
		f) With Certification from the manufacturer that the test tubes are reusable and not disposable		
		8. Comes with power source: 220 V -240 V AC input)/ (0-12 V) DC output, and with switch selector		
		9. Comes with 9 V battery with one (1) battery snap		
		10. Comes with two (2) connecting wires (1 red, 1 black)		
		a) Length : 304-305 mm		
		b) Type of wire : Stranded		
		c) Gauge no. : 20 - can be seen printed on the insulation of the wire		
		d) Comes with with alligator clip soldered on one end of the wires with banana plugs soldered on the other end of each wire (1 red, 1 black)		
		12. Comes with two (2) replacement graduated test tubes		
		a) rimless		
		b) graduated from its bottom to top. Zero starts at bottom		
		c) Material of test tubes : Borosilicate , clear, transparent and bubble-free-glass, with the following dimensions:		
		d)Diameter :18.0-18.5 mm		
		e) Length :150-151mm long		
		f) Capacity : 25 mL		
		g) With heavy uniform wall thickness, excellent heat resistance, round bottom glass		
		h) With permanent graduation of approx. volume and inscriptions in high contrast white enamel.		
		i) With brand etched/printed permanently onto the item		
		13. Comes with two (2) solid rubber stoppers to fit perfectly the two (18 x 150 mL) test tubes		
		14. Must be able to separate water into its elements producing two gases (hydrogen and oxygen) with a 2:1 ratio , a) 2 mL hydrogen: 1 mL oxygen; b) 4 mL hydrogen: 2 mL oxygen, c) 6 mL hydrogen: 3 mL oxygen, d) 8 mL hydrogen: 4 mL oxygen, e) 10 mL hydrogen: 5 mL oxygen, and so on until 6-8 mL of the has been collected for hydrogen gas, during the Electrolysis of Water experiment, and then test for the gases. Testing for each of the gases: a) For the gas collected at the negative electrode, a popping sound must be produced - Hydrogen gas b)For the gas collected at the positive electrode, the ember must glow more - Oxygen gas supports combustion		
		15. With a well written Operations Manual and Assembly Guide in English		
		16. With sample Activity Sheets/Teacher's Manual in English		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		17. With Detailed instructions provided.		
		18. For numbers 15-17, the following technical specifications from (a-e) must be followed:		
		a) For List of materials, In Table form		
		b) For User's Manual, Teacher's Guide, Student Worksheets, Instruction Sheets/ Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Orientation:Portrait		
		v) Margins on all sides with 2 point width border line		
		vi) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		19. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: I. Training Video Contents: "a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: "a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents)."		
		20. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded box with storage slots for each item to help prevent glass breakage.		
		21. Must be free from breakage, cracks, chipped rims and sharp edges surface irregularities and other defects not stated herein		
		22. Comes with a brand etched/enamelled permanently onto the glass		
		23. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
14	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	<p>Functional Specifications: Used to :</p> <p>a) contain/hold a small chemical reaction,</p> <p>b) mix solids and liquids,</p> <p>c)heat substances over a Bunsen/alcohol burner's flame up to over 100 °C or</p> <p>d)collect them in a titration/distillation experiment</p> <p>Performance Specifications: Must be able to:</p> <p>a) contain/hold a small chemical reaction ,</p> <p>b) mixes solids and liquids during chemical reaction,</p> <p>c) heats substances up to 100°C over a Bunsen burner's flame up to 250 mL, or</p> <p>d) serves as a reaction vessel in a titration experiment, and to collect distillate during distillation</p> <p>Design Specifications:</p> <p>1. Features a conical body, a cylindrical short neck , narrow mouth, with sloping sides, beaded rim, and with a flat bottom</p> <p>2. Material : Clear, and transparent bubble-free, smooth, borosilicate, glass with the following dimensions:</p> <p>a)Outside diameter: 80-82 mm</p> <p>b)Height: 130-132 mm</p> <p>c) Thickness: 1.5 to 2.0mm</p> <p>b) Neck inside diameter range : 28 to 30 mm</p> <p>3. With uniform wall thickness</p> <p>4. With narrow mouth, heavy duty beaded rim, graduated</p> <p>5. With permanent durable white enamel graduations of approximate volumes, large white block letters,numbers and easy to read inscriptions enamelled onto the glass, which includes the following:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Capacity: 250 mL</p> <p>c) With large white marking spot</p> <p>d) With single graduated metric scale</p> <p>d1) Graduation range : 50 -200 mL</p> <p>d2) Graduation interval: 25 mL</p> <p>d3) Graduation starts at: 50 mL in 25 mL increments</p> <p>e) Tolerance: ±6% and other inscriptions enamelled onto the glass</p> <p>6. Wrapped in paper and individually packed in a compartmentalized box</p> <p>7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>8. Must be able to withstand heating of water up to 150 deg C</p> <p>9. Placed in bubble wrap and packed in a sturdy box to help prevent glass breakage.</p> <p>10. Comes with a brand enamelled permanently onto the glass</p> <p>11. Must have a brand printed permanently on the glass</p> <p>12. Must be brand new</p>		
15	Funnel, borosilicate, fluted	<p>Functional Specifications: Used to direct the smooth flow of the liquid or fine-grained substances into another container tp prevent spills</p>		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to direct the smooth flow of the liquid or fine-grained substances into another container to prevent spills		
		Design Specifications:		
		1.Type : 60 ° angle, Fluted short stem funnel		
		2. Shape: A wide, inverted conical top with narrow short circular tube at the bottom, with depressed inside flutings in 60° angle		
		3. Material: Borosilicate, clear, transparent, bubble-free glass, with the following dimensions:		
		a) Top outside diameter: 75-76 mm		
		b) Stem outer diameter : 8-8.5 mm		
		c) Stem length : 75-76 mm		
		d) Total Height : 139-140 mm		
		4. With heavy beaded rim/edge and heavy uniform wall for strength.		
		5. With slanted fire polished tip, filter angle (angled 60°) and depressed inside fluting help reduce filtering time		
		6. Wrapped in paper, enclosed in bubble wrap, and individually packed in a sturdy box		
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		8. Comes with a brand and 60° embossed permanently onto the glass		
		9. Must be brand new		
16	Glass Tubing	Functional Specifications: Used to contain/hold/mix liquids or gases during chemical reactions and to connect other pieces of equipment/glasswares to a gas or liquid assembly		
		Performance Specifications: Must be able to:		
		a) be bent to onnect other pieces of equipment/glasswares to a gas or liquid assembly like in the activity " Flowing Up" and connect Florence flask to the Liebig condenser as a substitute for distilling flask for Distillation set up		
		b) contain/hold/mix liquids or gases during chemical reactions, to relate the rate of gas effusion with molar mass and demonstrate Graham's law of effusion in an experiment where a white ring mass is observed		
		Design Specifications:		
		1. Shape : Long slender hollow glass		
		2. Material : Soda lime, clear, transparent, bubble-free glass tubing, with the following dimensions:		
		a) Outside diameter : 6.0-6.5 mm		
		b) Wall thickness : 1.0-1.2 mm		
		c)Length: 1219-1500 mm		
		3. With fire polished ends		
		4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box		
		5. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		6. Comes with a brand printed permanently on its packaging		
		7. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
17	Manometer, Open U-tube	Functional Specifications: Used to indicate the difference in the heights of the manometric liquid to measure pressure		
		Performance Specifications: Must be able to indicate the difference in the heights of the manometric liquid to measure pressure by getting the pressure difference		
		Design Specifications:		
		1. Type : Differential pressure manometer		
		2. Shape : U-shaped glass tube partially filled with liquid, with no moving parts and requires no calibration		
		3. Material : Glass		
		4. With a 50-52 cm arm with funnel top on one arm and 4.5-5.5 cm bent (90°) with 15-16 mm rifled tip on another arm for easy connection		
		5. U-tube is mounted on a board, fixed on a wooden stand for vertical mounting using metal clips		
		a) Material of stand : Wood/en		
		b) Dimensions of back plate		
		i) Length : 540-542 mm		
		ii) Width : 90-102 mm		
		6. A millimeter scale is fitted between the arms of the tube.		
		a) Scale having graduation range: 0-50 cm		
		b) Graduation increment: 1 mm, with 0 at the bottom		
		7. Accessories:		
		a) With latex tubing, glass wall 2 mm thickness, 7.5-8.0 mm inner diameter.		
		i) Material of rubber tubing: Non-toxic non-tacky latex rubber tubing for the laboratory activity.		
		ii)Length of rubber tube: 3000-3005 mm		
		8. Stand with glass tube placed in bubble wrap, enclosed in bubble wrap and packed individually in a sturdy box		
		9. Accessories enclosed in resealable plastic bag		
		10. With User's Manual in English		
		11. With Assembly Guides and Activity Sheets		
		12. For numbers #10 and 11; they must be:		
		a) In Table form for List of materials, in A4 size, glossy paper,laminated		
		b) In sentences format for instruction sheets/assembly guides		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c)Printed in original copy, not photocopied		
		d) In colored drawings/illustrations		
		e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		14. Individually packed in a sturdy box		
		15. Comes with a brand printed permanently onto the wooden stand		
		16. Must be brand new		
18	Mortar and Pestle, porcelain, 150 mL.	Functional Specifications: Used to pulverize/mash/grind and to mix materials in a mortar using a pestle		
		Performance Specifications: Must be able to pulverize/mash/grind and mixes materials in a mortar using a pestle to demonstrate how particle size affects solubility and the rate of chemical reaction.		
		Decreasing the size of the particles increases the rate of dissolving and speeds up the rate of reaction because the surface area of the reactant has been increased.		
		Design Specifications:		
		A. Mortar		
		1. Shape of mortar : Deep form, bowl shape, with wide mouth , and with deeply molded, smooth rounded bottom		
		2. Material for mortar and pestle: Porcelain, with the following dimensions:		
		a) Outside diameter : 130-132 mm		
		b) Height/Depth : 65-85 mm		
		3. Capacity: 150 mL		
		4. With pouring lip		
		5. With unglazed grinding surface (interior) and uniformly glazed exterior		
		B. Pestle:		
		6. Shape of pestle: Cylindrical with bulbous bottom, with the following dimensions:		
		a) Length range : 133-160 mm and		
		b) Diameter range: 28-40 mm diameter at its widest point.		
		7. Material of pestle: A heavy bat-shaped porcelain		
		8. Uniformly glazed on its handle and rough on opposite end		
		9. The set is individually wrapped, enclosed in a bubble wrap and packed in a sturdy box		
		10. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein		
		11. Comes with a brand marked permanently on the body/box		
		12. Must be brand new		
19	Osmosis Apparatus	Functional Specifications: Used to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube		
		Performance Specifications: Must be able to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube, to describe/demonstrate the effect of concentration on one of the colligative properties (osmotic pressure) of solutions		
		Design Specifications:		
		1. Features a long shaft of tube with a reservoir and a funnel like/flared rim section at the top and at the bottom. The shaft is designed to allow insertion through a small hole present in a Y-shaped support stand giving way for the tube to be inserted into a container.		
		2. Comes as a complete set, which is composed of the following items:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a) With one (1) pc battery jar = 600-605 mL cap		
		b) With one (1) pc double thistle tube with brand name etched onto the glass		
		b1) Shape of double thistle tube: A long shaft of tube that ends in a reservoir bulb with a funnel shaped/flared rim at the top and bottom part		
		b2) Material of double thistle tube and jar : Smooth, clear, transparent free from bubbles, striae, or other imperfections borosilicate glass, with the following dimensions:		
		Length of double thistle tube : 405-410 mm		
		Diameter of each thistle tube (top and bottom): 29-30 mm		
		Diameter of glass tube: 14-15 mm		
		c) With one (1) pc stable Y-shaped metal support stand, safe to use, and absence/free of all sharp edges , all surface imperfections/irregularities and all other defects not stated herein		
		c1) Shape of metal support stand: Y-shaped support stand		
		c2) Material of support stand: Aluminum		
		c3) With a black plastic adjusting screw at the rear end with the red adjusting screw near the center of the Y-support stand used to adjust the opening of the stand when the double thistle tube is mounted vertically in place		
		d) Comes with ten (10) pc semi-permeable membrane		
		3. Each item is individually placed in a snap fit organizer shaped into each item and packed as a complete set in a padded sturdy polystyrene box		
		4. With Instruction Manual and Activity Sheets		
		5. With a well written User's Manual (Assembly guides) and Activity Sheets in American English, with technical specifications details(a-e) as follows:		
		a) original print		
		b) A4 size copy paper (80 gsm)		
		c) With colored pictures, drawings/illustrations		
		d) Margin of 1/2 inch on all sides: with 2 point width border line		
		e) Lay out orientation : Portrait		
		f) Title: OSMOSIS APPARATUS shall be placed on the top center		
		i) Font style: Times New Roman		
		ii) Font size: 36		
		iii) UPPERCASE		
		iv) BOLD		
		g) Labels		
		i) Font style : Times New Roman		
		ii) Font size: 14.		
		iii) First letter of the label is capitalized		
		iv) Line with arrowhead of 1.25 width shall point to the specific part being labeled		
		h) Sentences must be grammatically correct and with correct spelling, punctuations and terminologies		
		i) with colored illustrations and drawings		
		j) with 0.3 mm minimum thickness plastic laminated in thick plastic		
		6. Must be free from rust and dirt, breakage, cracks , chipped rims, sharp edges, other surface irregularities and all other defects not stated herein		
		7. Placed in bubble wrap, with storage slots for each item enclosed in polystyrene and packed as a set in a padded box to help prevent glass breakage.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		8. Comes with a brand permanently etched onto the double thistle tube and in the box		
		9. Must be brand new		
20	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	Functional Specifications: Used to contain/store and to provide UV protection of prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents		
		Performance Specifications: Must be able to contains/store and to provide UV protection for the prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents.		
		Design Specifications:		
		1. Shape : Cylindrical narrow-mouth bottle		
		2. Material : Borosilicate, smooth, bubble-free glass with the following dimensions:		
		a) Bottle diameter range: 66-72 mm		
		b) Neck I.D. range : 23-28 mm		
		c) Over-all height: 130 to 150 mm		
		3. Color: Amber		
		4. With approximate volumes, capacity, and other markings are in permanent white enamel which resists aggressive washing solutions		
		a) Manufacturer's name or trademark		
		b) 250 mL		
		c) white marking field/spot in permanent white enamel		
		5. With octagonal plastic stopper Socket size: 19/26 that fits the mouth well		
		6. With a white marking field/spot in permanent white enamel		
		a) logo/brand name		
		b) 250 mL		
		7. Wrapped in paper, enclosed in bubble wrap and packed individually in a padded sturdy box		
		8. Must be free from breakage, cracks , chipped rims, sharp edges, striae, all surface irregularities including all other defects not stated herein		
		9. Comes with a brand enamelled permanently onto the glass		
		10. Must be brand new		
21	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	Functional Specifications: Used to hold/ contain/store prepared solutions/ substances		
		Performance Specifications: Must be able to hold/contain/store prepared solutions/substances		
		Design Specifications:		
		1. Shape: Cylindrical wide-mouth bottle		
		2. Material: Borosilicate, clear, smooth, transparent and bubble-free glass, with the following dimensions:		
		a) Bottle diameter : 69 mm to 73 mm		
		b) Mouth diameter: 34 mm to 44 mm		
		c) Height : 129 mm to 142 mm		
		3. Features no-drip pour lip		
		4. With ground-in glass stopper		
		5. With air tight seal		
		6. With approximate volumes, capacity, and other markings are in permanent white enamel/stain which resists aggressive washing solutions		
		a) Manufacturer's name or trademark		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		b) 250 mL		
		c) white marking field/spot in permanent white enamel		
		7. Wrapped in paper, enclosed in bubble wrap and packed individually in a sturdy box		
		8. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein		
		9. Comes with a brand enamelled onto the glass		
		10. Must be brand new		
22	Rubber Stopper # 0 (for Ø 16mm test tube)	Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination		
		Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination		
		Design Specifications:		
		1. Shape: Cylindrical with a tapered bottom end		
		2. Material : Rubber compound with the following dimensions:		
		a) Height : 25-25.5 mm		
		b) Top Ø : 17-17.50 mm		
		c) Bottom Ø : 13-13.5 mm		
		3. Hardness : 40-45 Duro		
		4. Packed in resealable plastic bag		
		5. With no. 0 embossed onto the rubber stopper		
		6. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein		
		7. Comes with a brand marked permanently in the bag		
		8. Must be brand new		
23	Spatula, spoon, porcelain and glazed	Functional Specifications: Used to hold/contain and transfer solids and liquids from one container to the other		
		Performance Specifications: Must be able to hold/contain and transfers solids and liquids from one container to the other		
		Design Specifications:		
		1. Features a white, broad, flat, blade (spatula) on one end and a spoon on the other end.		
		2. Material : Uniformly glazed smooth finish porcelain		
		a) Capacity: 0.3 mL		
		b) Over all Length : 121-142 mm		
		3. Must be free from breakage, cracks,chipped edges and all other defects not stated herein		
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box.		
		5. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein.		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		
24	Stirring Rod, Ø 6 mm x 250 mm long	Functional Specifications: Used to mix liquids and solids		
		Performance Specifications: Must be able to mix liquids and solids well to speed up the dissolving process and increases the rate of reaction		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Features a long, slender cylindrical solid glass, with the same thickness and slightly longer than a drinking straw and with rounded fire polished ends.		
		2. Material: Clear, transparent bubble-free stir stick solid borosilicate glass with the following dimensions:		
		a) Diameter(Ø) : 6-6.3 mm		
		b) Length: 250-254 mm long		
		3. With rounded and fire polished ends		
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box		
		5. Must be free from breakage, cracks, chipped unpolished ends, all other surface imperfections including all other defects not stated herein		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		
25	Test tube brush	Functional Specifications: Used to clean test tubes and other small sized glasswares		
		Performance Specifications: Must be able to clean test tubes and other small-sized glasswares with densely filled radial tip and head brush to make complete contact with walls, corners and bottom.		
		Design Specifications:		
		1. Features a radial tufted tip white nylon bristles and brush head lined against a rather sturdy wire handle with a looped end to make complete contact with walls, corners and bottom to clean test tubes and other small sized glasswares .		
		2. Material of bristles : Medium stiff nylon with the following dimensions:		
		a) Diameter of bristle section: 18-19 mm		
		b) Length of bristle section : 82-102 mm		
		c) Over-all length: 228 -229 mm		
		3. Material of handle: Galvanized steel wire		
		4. Type of wire handle : Common loop twisted wire		
		5. With circular wire loop for hanging		
		6. Packed in a resealable plastic bag		
		7. Must be free from rust, sharp edges, all other surface irregularities including all other defects not stated herein		
		8. Comes with a brand marked permanently in the box		
		9. Must be brand new		
26	Test Tube, borosilicate, Ø 16 mm x 150 mm long	Functional Specifications: Used to contain/hold a small chemical reaction , to mix small quantities of solids and liquids, and to heat small quantities of substances		
		Performance Specifications: Must be able to contain/hold a small chemical reaction and , mixes solids and liquids, heats small quantity of substances up to more than 100°C over a Bunsen burner's flame		
		Design Specifications:		
		1. Features a finger-like length of glass tubing, open at the top, usually with a rounded lip at the top, and a rounded 'U' shaped bottom		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		2. Material of test tube: Borosilicate , clear, transparent and bubble-free, reusable glass , with rim, with the following dimensions:		
		a) Outside Diameter: 15.8-16.0 mm		
		b) Thickness: 1.3 -1.4 mm		
		c) Length: 150-152 mm		
		d) Comes with a certification from the manufacturer that the test tube is reusable and not disposable		
		3. Capacity: 20 mL		
		4. With heavy uniform wall thickness, excellent heat resistance		
		5. With large, white enamel marking spot		
		6. Test tubes must be reusable (not disposable)		
		7. Wrapped individually in tissue paper, enclosed in bubble wrap and packed in compartmentalized box		
		8. Must be free from breakage, cracks, chipped rims, surface irregularities and all other defects not stated herein		
		9. Comes with a brand enamelled permanently in the glass		
		10. Must be brand new		
27	Tong, Crucible	Functional Specifications: Used to lift and hold crucibles,remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container		
		Performance Specifications: Must be able to lift and hold crucibles, remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container.		
		Design Specifications:		
		1. Features a scissor-like and a long bent neck tongs, with two anti-skid pincers or pieces of metals that concave together, which allow the users to grasp a hot crucible, flasks, evaporating dishes, or even small beakers		
		2. Material : Stainless steel,durable, stable, rust and heat resistant		
		a) Color: Silver		
		b) Finish: Smooth		
		c) Overall Length: 228 -229 mm		
		3. With riveted joints		
		4. With serrated tips.		
		5. Enclosed in resealable bag and packed in a sturdy box		
		6. Must be free from rust, dirt, cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		7. Comes with a brand marked permanently in a box		
		8. Must be brand new		
28	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 25 mL		
		Performance Specifications: Must be able to hold/contain/store/mix small quantities of samples up to 25 mL		
		Design Specifications:		
		1. Type : Threaded Screw cap		
		2. Shape : Bottle-like shape with a threaded neck, solid plastic closure and with a flat bottom.		
		3. Material : Borosilicate clear, transparent, and bubble-free glass, with the following dimensions:		
		a) Outside Diameter : 25-30 mm		
		b) Length: 60-80 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. With screw- type solid plastic cap		
		5. Shape of neck : Cylindrical, round		
		6. Neck finish : Continuous thread		
		7. Cap Color: Colored		
		8. Cap Attached: No		
		9. Cap Material : Plastic		
		10. Closure style : Solid top, screw thread cap		
		11. Material: Plastic		
		a)Diameter : 25-30 mm		
		b) Length: 60-80 mm		
		12. Capacity: 25 mL		
		13. Packed individually in a compartmentalized/partitioned box		
		14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		15. Comes with a brand marked permanently on the box		
		16. Must be brand new		
29	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 50 mL		
		Performance Specifications: Must be able to hold/contain/store/mix samples/solutions/substances up to 50 mL		
		Design Specifications:		
		1. Type : Threaded Screw cap		
		2. Features a bottle-like shape with a threaded neck, screw cap plastic closure and with a flat bottom		
		3. Material : Borosilicate,clear, transparent, and bubble-free glass with the following dimensions:		
		a) Outside Diameter : 25-50 mm		
		b) Length : 100-108 mm		
		4. Capacity: 50 mL		
		5. Shape of neck : Cylindrical, round		
		6. Neck finish : Continuous thread		
		7. Cap Color :Colored		
		8. Cap Attached: No		
		9. Cap Material : Plastic		
		10. Closure style : Solid top, screw thread cap		
		11. Material : Plastic		
		a)Diameter : 24-26 mm		
		11. Packed individually in a compartmentalized box		
		12. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein		
		13. Comes with a brand marked permanently on the box		
		14. Must be brand new		
30	Watch Glass, Ø 90 mm	Functional Specifications: Used to:		
		a) cover glasswares like beakers		
		b) evaporates solvents in a sample and		
		c) holds/contains liquids and solids prior to heating.		
		Performance Specifications: Must be able to:		
		a) cover glasswares like beakers		
		b) evaporate solvents in a sample and		
		c) hold/contain liquids and solids prior to heating.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1.Shape : Circular concave		
		2. Material : Borosilicate, clear, transparent, and bubble-free glass with the following dimensions:		
		a) Diameter : 90-91 mm		
		b) Thickness range : 1.5 mm to 2 mm		
		3. Fire-polished rims/edges		
		4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box		
		5. Must have fire polished edges/rims, be free from breakage, cracks, chipped and sharp edges, surface irregularities including all other defects not stated herein		
		6. Comes with a brand marked permanently in the box		
		7. Must be brand new		
LOT 11: SCIENCE DEVICES, INSTRUMENTS AND MEASURING TOOLS MATTER (MI-LOT 11)				
1	Balance, Toploading, Electronic	Functional Specifications: Used to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability		
		Performance Specifications: Must be able to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability to determine mass relationship in a chemical reaction		
		Design Specifications:		
		1. Type : Digital		
		2. Shape of pan : Rectangular		
		3. Material of pan : Stainless steel		
		4. Removable high strength stainless steel weighing platform		
		5. Load/Capacity : 500 g		
		6. Readability/Accuracy : 0.01 g		
		7. Repeatability : 0.01 g		
		8. Comes with 500 g span calibration mass		
		9. Power Supply : 220-240V/ 50Hz		
		10. With large Liquid crystal display (LCD) with backlight		
		11. With multiple weighing units and overload protection		
		12. With automatic calibration		
		13. With standard RS 232 interface		
		14. Parts counting and percentage weighing		
		15. With accessories, such as:		
		a) the power cord,		
		b) AC Adapter and		
		c) 4 AA batteries		
		d) draft shield		
		16. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		17. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:		
		I. Training Video Contents:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		18. Must be rust-free, free from dirt and breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein		
		19. Comes with a brand marked permanently onto the item		
		20. Must be brand new		
2	Balance, Triple Beam, with tare, 2610-gram	Functional Specifications: To measure mass of solids, liquids and gases accurate up to 0.1 g readability		
		Performance Specifications: Must be able to measure mass of solids and liquids accurate up to 0.1 g readability to determine mass relationship in a chemical reaction		
		Design Specifications:		
		1. Features three graduated-tier beam with pan		
		2. Display : Easy to-read deep-notched, tiered beams and dial plates		
		3. Material of weighing pan: Stainless Steel		
		4. Shape of weighing pan: Circular		
		5. Pan size diameter : 150-151 mm		
		6. Material of base : Cast metal with corrosion resistant smooth finish		
		7. With spring, loaded zero-adjust compensator		
		8. With self-aligning agate bearings, precision ground steel knife edges		
		9. With magnetic dampening to minimize oscillation and speed weighing		
		10. With adjustment knob for taring		
		11. With iron stand assembly (stand rod and C clamp) for fastening on the table and suspending the triple beam balance on air for specific gravity determination		
		12. Maximum Capacity : 2610 grams		
		13. Accuracy : 0.10 gram readability		
		14. With three beam graduations:		
		a) Rear beam : 100 g X 10 g		
		b) Center beam : 500 g X 100 g		
		c) Front beam : 10 g X 0.1 g		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		15. Equipped with three separate masses/counterweights:		
		a) 2 pc 1,000 grams counter weights		
		b) 1-pc 500 grams counter weight		
		16. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin		
		17. With English User's manual that contains Operation guide and also indicates formula and procedure in determining specific gravity and taring.		
		18. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format.		
		b. Shall be saved in a USB 3.0 Flash Drive.		
		c. Shall have a High-Definition resolution of at least 1080p.		
		d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.		
		e. Shall comply an aspect ratio of 4:3.		
		f. Shall have a cover video pane containing the equipment name and a video pane for each video content.		
		g. The video, voiceover (audio), and subtitle shall be in sync.		
		h. The training video shall cover all the above requirement (video contents).		
		19. Must be free from rust and dirt, breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein		
		20. Enclosed in a polystyrene and packed in a sturdy box		
		21. Comes with a brand marked permanently onto the item and		
		22. Must be brand new		
3	Calorimeter	Functional Specifications: Used to measure heat effects or heat of reactions		
		Performance Specifications:		
		a) Must be able to measure the heat effects or heat of reactions, the heat of neutralization of an acid and heat of fusion in the laboratory		
		b) to distinguish between exothermic and endothermic processes		
		Design Specifications:		
		1. Features a double-walled cylindrical double wall with air insulation between two polished spun vessels		
		2. Material : Two polished spun aluminum vessels with the following dimensions:		
		A) Outer vessel size:		
		a) Height :100-140 mm		
		b) Diameter : 65-115 mm		
		B) Inner vessel size :		
		a) Height: 72-89 mm		
		b) Diameter : 61-77 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		3. The two are separated by a molded polystyrene insulated separator/insulating wall.		
		4. The outer vessel has a transparent plastic lid/molded Bakelite cover, and with hole for thermometer		
		5. Supplied complete with stirrer, but without thermometer.		
		6. Accessories:		
		a) With a plastic insulator ring or fiber washer for insulating and supporting one vessel within the other, protects the polystyrene insulation against damage and liquid spills.		
		b) Insulated Stirrer		
		c) A clear transparent molded cover or plastic lid with a filler cap, with two holes (one hole is for the rubber stopper that holds the thermometer and the other hole for the stirrer		
		d) Rubber stopper with one hole		
		e) With polystyrene/a fiber separator to insulate the inner vessel		
		f) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the insulation of the calorimeter, is polystyrene, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		7. With Instruction Manual in English that contains precise instructions on how to conduct common calorimetry experiments.		
		8. With User's Manual on the use, care, maintenance, trouble shooting and proper storage in English		
		9. With Activity Sheets/Teachers Manual in English		
		10. For numbers #7 to 9; technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		11. Must be free from rust and dirt, cracks, scratches, dented rims, sharp edges, surface irregularities including all other defects not stated herein		
		12. Comes with a brand printed permanently on the calorimeter		
		13. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
4	Centrifuge	Functional Specifications: Used as one of the separation techniques for mixtures and compounds when the density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens		
		Performance Specifications: Must be able to separate mixtures and compounds based on density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens		
		Design Specifications:		
		1. Type : Fixed speed		
		2. Material: Non-toxic plastic, with the following dimensions:		
		a) Height : 241-266 mm		
		b)Width : 279-330 mm		
		c) Depth : 279-330 mm		
		d) Certification from the manufacturer of the non-toxicity of the material used		
		3. Color finish: Black		
		4. With Angled rotor, 8-Place Centrifuge with Timer		
		5. With Lid safety shut-off switch		
		6. Holds 3 mL to 15 mL size tubes		
		7. With 12 volt DC maintenance-free motor		
		8. Maximum volume : 120 mL (15 mL x 8)		
		9. Fuse : 3 amp/ 250 volts		
		10. Maximum speed : 3,500 rpm with fixed speed control. (blood, urine, etc.)		
		11. Clear view port in lid for using tachometer		
		12. Suction-cupped feet to prevent slipping		
		13. With Auto-off 30-minute timer with bell		
		14. With power cord		
		15. Power supply: 110/220 v , with auto-switching power adapter		
		16. Certification : CE, UL, cUL approved		
		17. Includes the following:		
		a). Eight-place tube rotor		
		b) Eight 15ml tube sleeves		
		c) Eight 13 x 75 mm tube sleeve inserts		
		d) Eight 15 mL round bottom plastic centrifuge tubes with screw cap with white or black print graduations		
		e) Eight 13 x 75mm round bottom plastic centrifuge tubes with screw cap		
		18. Placed in bubble wrap, enclosed in polystyrene and individually packed in sturdy box		
		19. With Operations Manual and Assembly Guide in English		
		20. With sample activity sheets in English		
		21. For numbers #19 to 20; technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		22. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: I. Training Video Contents: "a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: "a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents)."		
		23. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein		
		24. Comes with a brand marked permanently onto the label		
		25. Must be brand new		
5	Electrical Conductivity (Conductivity of Solutions) Apparatus	Functional Specifications: Used as a visual demonstration of the electrical conductivity of various liquids/solutions.		
		Performance Specifications: Must be used as a visual demonstration of the electrical conductivity of various liquids/solutions whether it is an/a:		
		a) electrolyte - conducts electricity or		
		b) non-electrolyte - does not conduct electricity .		
		Design Specifications:		
		1. Shape : Cylindrical jar with flat bottom		
		2. Material of jar: Clear, transparent, smooth, and bubble free glass, with the following dimensions:		
		a) Diameter: 72-75 mm		
		b) Height : 75-80 mm		
		3. Capacity of jar/container: 150-200 mL		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. It comes with a jar cover which perfectly fits the glass jar		
		a) Material of jar cover: Plastic		
		b) Color of jar cover: Green/Any color		
		5.It consists of an electric lamp (3.0-4.0 V) in series with open electrodes		
		6. It comes with a plastic molded lamp socket		
		7. It comes with one (1) pc bulb		
		a) Type of bulb: Miniature type		
		b) Voltage: 3.0-4.0 volts		
		c) Number of extra light bulbs : Ten (10) pc		
		8.With two (2) binding posts color coded (black and red) for connection to two wire connectors.		
		9. With two (2) electrodes, which fit inside the glass jar, internally connected to the lamp circuit, namely:		
		a) a copper wire (anode) and		
		b) a carbon rod (cathode)		
		10. Length of electrodes : 60-80 mm		
		11. First power source: 2 AA batteries		
		12. With 1 pc battery holder		
		13. Comes with second power source: 220 V -240 V AC input)/(0-12 V) DC output, comes with switch selector		
		14. Comes with:		
		a) two (2) connecting wires (1 red, 1 black) with alligator clips (1 red, 1 black) soldered on one end of the wire		
		b) Length of wire : 305-330 mm		
		c) Type of wire : Stranded		
		d) Gauge number : 20 - which is printed permanently on the insulation of the wire		
		15. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded box with storage slots for each item to help prevent glass breakage.		
		16. Must be free from breakage, cracks, chipped rims and sharp edges surface irregularities and other defects not stated herein		
		17. Must be able to show during an experiment on Electrical Conductivity of Solutions that electrolytes conduct electricity when the bulb lights up while non-electrolyte solutions did not conduct electricity when the bulb wont light up		
		18.With Operations Manual and Assembly Guide in English		
		19. With sample activity guide/sheets/Teacher's Manual in English		
		20. For numbers #18 to 19; the technical specifications a-e must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 3.0 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		21. Comes with a brand marked permanently onto the box		
		22. Must be brand new		
6	Filter Paper, crepe, 580mm x 580 mm sheet, Grade 0905	Functional Specifications: Used to filter/separate mixtures solids from liquids		
		Performance Specifications: Must be able to filter solids from liquids to demonstrate filtration, as one of the techniques in separating mixtures (solids from liquids)		
		Design Specifications:		
		1. Type: Technical use		
		2. Shape of filter paper : Square		
		3. Material: Cellulose with the following dimensions:		
		a) Length: 580-580.5 mm		
		b) Width : 580-580.5 mm		
		4. Color: White to cream		
		5. Surface: Creped, very coarse textured surface		
		6. Grade 0905		
		7. Initial Filtration Speed: 5 sec/10 mL		
		8. Flow rate : High		
		9. Packed in a brown filter paper tube		
		10. Must be free from dirt and all other surface imperfections including all other defects not stated herein		
		11. Comes with a brand marked permanently printed in the filter paper tube		
		12. Must be brand new		
7	Gloves, Hand, super nitrile	Functional Specifications: Used to protect hands against mechanical risks, microorganisms, chemical burns and splashes		
		Performance Specifications: Must be able to protect hands against mechanical risks, microorganisms, chemical burns and splashes		
		Design Specifications:		
		1. Features a slightly curved fingers and forward-facing thumb correspond to the natural position of the hand (hand-shaped)		
		2. Material : Nitrile, reusable , with the following dimensions:		
		a) Length of gloves : 330-360 mm		
		b) Thickness : 15 mil/0.38 mm minimum		
		The thickness must be measured from the cuff, palm and fingers		
		c) Submission of the original copy of the Test certificate/s issued by the testing unit , like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the hand gloves, is super nitrile , to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		d) With Certification from the manufacturer that the hand gloves is reusable and not disposable		
		3. Color : Green		
		4. Size : 8/Medium		
		5. Interior finish (liner material) : Flocklined acid/solvent resistant)		
		6. Exterior finish : Embossed texture		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Cuff style: Straight		
		8. Latex free to suit those with latex allergies		
		9. Non-slip wear resistant high elasticity , waterproof		
		10. Puncture resistant		
		11. With detailed imprints on each glove, on the following:		
		a) the glove size/s		
		b) the name of manufacturer		
		c) nitrile, flocklined		
		d) individual manufacturing lot		
		e) with pictograms for certification category requirements CE 0334 (EN 420, EN 388, EN 374) designed for protection against mechanical risks, chemical risks, and micro-organisms)		
		12. Individually packed in pairs in a resealable plastic bag		
		13 With a statement of conformity from the manufacturer that the gloves complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems.		
		14. Comes with a brand printed permanently onto the gloves		
		15. Must be brand new		
8	Graduated Cylinder, borosilicate, 10 mL	Functional Specifications: Used to measure and to deliver the volume of liquids		
		Performance Specifications: Must be able to measure and to deliver the volume of liquids up to 10 mL capacity		
		Design Specifications:		
		1. Features a narrow cylindrical container with a small turned-out lip		
		2. Material: Borosilicate, clear, smooth, transparent and bubble-free glass		
		a) Thickness range : 1.3-1.4 mm		
		b) Outside diameter: 13-14 mm		
		c) Height: 177-178 mm		
		3. Features an easy-pour spout		
		4. With permanent white enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity: 10 mL		
		c) Graduations: 0.10		
		d) Class: A		
		e) Tolerance : $\pm 0.10 - \pm 0.20$		
		f) EX/TD		
		g) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin. institution appropriate to the goods' country of origin.		
		h) 20°C-27°C		
		5. Single metric scale		
		a) Graduation Range : 1 to 10 mL		
		b) Graduation interval : 0.1 mL		
		6. With a hexagonal non-detachable glass base		
		7. With a bumper guard		
		8. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		9. Placed in bubble wrap, and packed individually in a compartmentalized box		
		10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		11. Comes with a brand marked permanently onto the glass		
		12. Must be brand new		
9	Graduated Cylinder, borosilicate, 100 mL	Functional Specifications: Used to measure and to deliver the volume of liquids		
		Performance Specifications: a) Must be able to measure and to deliver the volume of liquids up to 100 mL capacity b) Used as a container to determine the volume of irregularly shaped solids by water displacement		
		Design Specifications:		
		1. Features a narrow cylindrical container with a small turned-out lip		
		2. Material : Borosilicate, clear and transparent bubble-free glass with the following dimensions: a) Thickness range : 1.3-1.4 mm b) Outside diameter: 29-31 mm c) Height: 254-256 mm		
		3. Features an easy-pour spout		
		4. With permanent white enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following: a) Manufacturer's name or trademark b) Capacity: 100 mL c) Graduations: 1 mL d) Class A e) Tolerance : ± 0.60 mL f) EX/TD g) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin. h) 20°C		
		5. With single graduated metric scale a) Graduation range : 5 to 100 mL b) Graduation Interval : 1 mL		
		6. With plastic bumper guard		
		7. With a hexagonal non-detachable glass base		
		8. With Statement of Accuracy (Certificate of Traceability) or Certification of Accuracy atest issued by the concerned institution which must conform to the authoritative standards lappropriate to the goods's country of origin		
		9. Placed in bubble wrap, and packed individually in a compartmentalized box		
		10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		11. Comes with a brand marked permanently onto the item		
		12. Must be brand new		
10	Graduated pipette with rubber pipettor, borosilicate, 10 mL	Functional Specifications: Used to measure the amount of liquid being dispensed/delivered/transferred to another container accurate up to 10 mL capacity		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to measure the amount of liquid being dispensed/ delivered/transferred to another container accurate up to 10 mL capacity		
		Design Specifications:		
		1. Features a serological, transfer type straight tube with one constricted end		
		2. Material : Borosilicate, reusable , clear, transparent bubble-free glass		
		a) With Certification from the manufacturer that the graduated pipette is reusable and not disposable		
		3. With permanent colored enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:		
		a) Manufacturer's name or trademark		
		b) Capacity : 10 mL		
		c) Color band code for 10 mL cap :Orange		
		d) Graduation interval: 0.1 mL		
		e) Class A		
		f) Marked "TD" /Ex		
		g) Tolerance : ± 0.06		
		h) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin.		
		i) 20°C		
		4. Graduated to tip, zero at top		
		5. Color code for 10 mL cap :Orange		
		6. Top end is constricted		
		7. Capacity: 10 mL		
		8. Graduation interval: 0.1 mL		
		9. Class A permanently marked on the glass		
		Tolerance ± 0.06 mL		
		10. Graduations , approximate volumes, capacity, and other markings are in permanent amber stain which resists aggressive washing solutions		
		11. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		12. With a statement of conformity from the manufacturer that the product complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems.		
		13. Accessory :		
		With Rubber pipettor		
		a) Typ : Three (3) -way Safety Bulb-type Pipet Filler with S, E and A letters embossed on the rubber		
		b) Material : Non-toxic natural rubber		
		c) Color : Red/orange		
		d) With pinch release valves that control air evacuation, liquid uptake, and liquid dispensing		
		e) Fits standard size pipettes		
		14. Packaging : Wrap glassware in newspaper and secure with a piece of masking tape and place in a bubble pouch, enclosed in polystyrene and packed in a sturdy box		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		15. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		16. Comes with a brand printed permanently on the glass		
		17. Must be brand new		
11	Hydrometer for heavy liquids	Functional Specifications: Used to measure relative density of heavy liquids based on the concept of buoyancy		
		Performance Specifications: Must be able to measure relative density of heavy liquids based on the concept of buoyancy, like glycerine		
		Design Specifications:		
		1. Type : Long Plain Form		
		2. Features a long cylindrical hollow glass tube with a bulb weighted at the pointed bottom with a steel ballast with graduations on the arrow stem for measuring.		
		3. Material : Clear , transparent bubble-free Glass, with the following dimensions:		
		a) Length : 300 - 330 mm		
		4. Specific Gravity Range: 1.00 - 2.00		
		5. Subdivision : 0.01		
		6. Comes with a ballast		
		a) Material of ballast : Glass		
		b) Heavy metals (lead, mercury)- free metal ballast		
		c) Material inside the ballast : Steel pellets and		
		d) With a binder		
		7. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		8. Individually serialized		
		9. Individually packed in a protective hard plastic case		
		10. With User's Manual in English		
		11. With Activity Sheets/Teacher's Manual in English		
		12. For numbers #10-11, the technical specifications (a-e) must be followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size: 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.		
		14. Must have a brand etched/engraved onto the glass		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		15. Must be brand new		
12	Hydrometer for light liquids	Functional Specifications: Used to measure relative density of light liquids based on the concept of buoyancy like water		
		Performance Specifications: Must be able to measure the relative density of liquids lighter than water based on the concept of buoyancy		
		Design Specifications:		
		1. Type : Long Plain Form		
		2. Shape : Long cylindrical hollow glass tube with a bulb weighted at the bottom with a steel ballast with graduations on the narrow stem for measuring		
		3. Material : Clear , transparent bubble-free Glass , with the following dimensions:		
		a) Total Length: 300 - 330 mm		
		b) Subdivision : 0.005		
		4. Specific Gravity Range : 0.70 to 1.0		
		5. Accuracy : ±1 subdivision		
		6. Comes with a ballast		
		a) With heavy metals (lead, mercury)- free metal ballast and glass		
		b) Material inside the ballast: Steel pellets and		
		c) With a binder		
		7. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		8. Individually serialized/packed in a protective hard plastic case		
		9. Individually packed in a protective hard plastic case		
		10. With User's Manual in English		
		11. With Activity Sheets/Teacher's Manual in ENGLISH		
		12. For numbers #10-11; the technical specifications (a-e) must be strictly followed:		
		a) For Contents List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size : A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size : 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein		
		14. With a brand etched/printed onto the item		
		15. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
13	Laboratory Hot Plate with magnetic stirrer	Functional Specifications: a)Used to heat samples, glasswares and its contents, solutions, and substances uniformly with constant stirring , or		
		b) boiling of water		
		c) to sterilize glasswares and other materials uniformly,		
		d) dissolving buffers and reagents with constant stirring		
		e) preparing media,		
		f) concentrating samples and		
		g) to prepare chemicals used in scientific research.		
		Performance Specifications: Must be able to		
		a) heat samples, glasswares and its contents, solutions, and substances with constant stirring		
		b) boiling of water		
		c) to sterilize glasswares and other materials uniformly		
		d) dissolving buffers and reagents with constant striring		
		e) preparing media,		
		f) concentrating samples and		
		g) to prepare chemicals used in scientific research		
		h) Agitates the liquid to speed up the reaction and mixes components (solid and liquid to get homogeneous mixtures		
		Design Specifications:		
		1. Type : Digital		
		2. Top plate material : Ceramic coated aluminum plate (chemical-acid-base resistant)with the following dimensions:		
		a) Length : 178-220 mm		
		b) Width: 178-220 mm		
		c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the top plate is ceramic coated aluminum (chemical-acid-base resistant), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.		
		3. Color of top plate : White		
		4. Color of body: Midnight blue/any color		
		5. Comes with temperature probe, probe holder, support rod, and stir bar		
		a) With accurate internal temperature sensor and external temperature probe		
		b) With plug/holder/ clamp/clip for temperature probe		
		c) With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.		
		d) With Stand rod with the following dimensions:		
		i) Material: Stainless steel		
		ii) Diameter (Φ):12-14 mm		
		iii) Length: Φ450-452 mm		
		iv) With PTFE Cross Spinplus magnetic stirrer bar Dimensions: 1 x 9/16 inches (25.4 x 14.3 mm) Color: White		
		6.Maximum Operating Temp.: 380 °C minimum		
		7. Temperature accuracy : ± 0.3 °C at set temperature		
		8. Stirring capacity : 5-20 Liters		
		9. Speed : 80-1500 rpm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		10. Control resolution : 5 rpm		
		11. Temperature range and accuracy : Max 380 °C minimum		
		12. Heating power consumption : 600 W minimum		
		13. With digital LCD with backlight display		
		14. With digital feedback controller with joggle shuttle switch(Turn + Push)		
		15. With over temperature protection		
		16. With power cord, AC Adapter Quick and easy adjustment knob		
		17. Control: Quick and easy adjustment knob		
		18. With safety LEDs to indicate when heating function has been activated		
		19. Power: 220-240 V AC, 50/60 Hz, 800 W minimum		
		20. With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.		
		21. With quick adjustment knob and LED indicator		
		22. Includes English User's Manual which consists of the Operating Manual		
		23. With Activity Sheets/Teacher's Manual in English		
		24. For numbers #22-23; the technical specifications (a-e) must be strictly followed:		
		a) For Contents/ List of materials, In Table form		
		b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format		
		i) With sentences grammatically correct and		
		ii) With correct spelling and terminologies, punctuations and others		
		c) In original print, not photocopied		
		d) In colored pictures, drawings/illustrations		
		e) in 0.3 minimum thickness plastic laminated Assembly Guides that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:		
		i) Paper Size: A4 size , 80 gsm		
		ii) Font : Times New Roman		
		iii) Font size: 12		
		iv) Margins on all sides with 2 point width border line		
		v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled		
		25. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein		
		26. Must be packed in polystyrene and enclosed in a sturdy box		
		27. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		28. Comes with a brand marked permanently on the box		
		29. Must be brand new		
14	Safety Goggles, polycarbonate	Functional Specifications: Used to protect eyes and face against chemical burns and splashes		
		Performance Specifications: Must be able to protect eyes and face against chemical burns and splashes		
		Design Specifications:		
		1 Features an angled vented portion that does not allow direct straight line from the exterior to the interior of the eyewear which encloses wide area surrounding the eyes		
		2. Material of lens : Polycarbonate lens		
		a) Submission of the original copy of the Test certificate/s issued by the testing unit , like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the lens of the safety goggles, is polycarbonate , to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier. b) With Certification from the manufacturer that the pair of hand gloves is reusable and not disposable		
		3. Color of the lens: Clear		
		4. Lens type : Anti-splash, anti-fog treated/anti-scratch coating		
		5. With indirect ventilation channels (preventing penetration of splashes) one through each side of the frame to keep out large particles, dust, and liquids and splash hazards, improves air circulation and reduces fogging in hot/humid conditions		
		6. With wrap around elasticized adjustable headband integrated with goggle frame to prevent slippage and holds the goggle more securely		
		7. With pivoting headband clips to adjust strap around hard hats or hearing protection		
		8. Peel-off goggle covers available to extend the life of the lens		
		9. Can be worn over most prescription eyewear (OTG compatible)		
		10. With firm comfortable seal around forehead, cheeks, nose and temples protects against chemicals, dust and grindings		
		11. Shall bear mark ANZI Z87.1-2010 Standard for Chemical Splash and Dust Protection, Z87+D3 to indicate an impact protector type (ANSI Z87.1, CE EN 166 or CSA Z94.3 certification compliance) on the frame and the lens		
		12. The manufacturer or supplier certification mark must be present on all approved safety lenses, frames (front and temple), removable side shields, and other parts of the glasses, or goggles.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		13. Individually packed in a transparent plastic bag		
		14. Labeling of the primary packaging displays, product name, product reference, manufacturer name, size, type, performance testing information for particular storage conditions (temperature, pressure, light, humidity, as appropriate or harmonized symbol as applicable.		
		15. With issuance of certification statement from the manufacturer as to the:		
		a) Non-toxicity of the materials used		
		b) Material of the lens : polycarbonate		
		c) It is fog coated/scratch and impact resistant		
		16. Individually packed in a sturdy box/plastic bag		
		17. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein		
		18. Comes with a brand marked permanently on the box		
		19. Must be brand new		
15	Thermometer, Laboratory type, Alcohol, -20°C to 110°C	Functional Specifications: Used to measure the temperature		
		Performance Specifications: Must measure the temperature , -20° to 110°C		
		Design Specifications:		
		1. Type : Alcohol filled, partial immersion thermometer		
		2. Features a small sealed tube made of glass that has a small hollow bulb filled partly with ethanol and partly with nitrogen and ethanol vapors on one end and a thin capillary opening running through the length of its center		
		3. Material : Glass		
		4. Color : White/yellow		
		5. Non-toxic red-filled thermometer		
		6. Partial immersion type with immersion line indicator and ring top		
		7. With precision red alcohol-filled, reinforced bulbs, and with expansion chamber		
		8. With white back with non-roll sleeve		
		9. With clear and permanent markings; scale never washes out		
		10. Provided with non-roll plastic case		
		11. With continuous alcohol column with no separations		
		12. All graduation lines, figures, and letters should be clear-cut, distinct, and filled with a permanent pigment of suitable color with the following dimensions:		
		a) Length : 200 mm (min)		
		b). Accuracy: ± 1° C		
		c) Range : -20°C to 110°C		
		d) Division: 1°C		
		e) Diameter: 5.8 to 6.2 mm		
		f) Immersion line: 76 mm		
		13. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin		
		14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein.		
		15. Comes with a brand printed permanently onto the glass		
		16. Must be brand new		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
LOT 12: SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS – EARTH & SPACE AND LIVING THINGS (MI-LOT 12)				
1	Anemometer with Wind Vane, Cup type	Functional Specifications: Used to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading		
		Performance Specifications: Should be able to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading		
		Design Specifications:		
		1. Anemometer and wind vane combined in 1 unit		
		2. Dimension of unit : 340-350 mm x 75-80 mm x 75-80 mm (H x W x D)		
		3. Powered by AA dry cells		
		4. Direct digital reading of wind speed, can display wind speed in m/s and km/hr, can measure average wind speed and instantaneous wind speed by means of selector switch		
		5. Wind vane should be free moving to indicate wind direction, wind vane should have arrow head on one end and arrow tail on the other end		
		6. Made of corrosion resistant material		
		7. All labels, inscriptions, and instructions should be in English		
		8. The item should be free from toxic materials		
		9. The item should be branded and permanently marked on the item		
2	Anemometer, Simple	Functional Specifications: Used to determine wind speed by calculating the number of rotations the rotor makes per unit time		
		Performance Specifications: Should be able to determine wind speed by calculating the number of rotations the rotor makes per unit time		
		Design Specifications:		
		1. Sensitive/low friction model for demonstrating the principle of wind velocity. Can rotate with human blow		
		2. Made of corrosion resistant material		
		3. Consist of 4 cups (4.5-5 cm diameter) mounted on a hub and on an axle securely affixed to a tough and stable base. 3-cups are colored black with one red cup to facilitate counting of rotations.		
		4. Dimension: 210-220 mm x 150-160 mm (H X W)		
		5. With No Removable Parts		
		6. All labels and inscriptions should be in English, and permanently marked on the item		
		7. The item should be free from toxic materials		
		8. The item should be branded and permanently marked on the item		
3	Aneroid Barometer Set (Demonstration Type)	Functional Specifications: Used to demonstrate how an aneroid barometer works		
		Performance Specifications: Should be able to demonstrate how an aneroid barometer works		
		Design Specifications:		
		1. The unit is supplied with rubber compression bulb with tube, changes in pressure can be demonstrated and obtained by compressing the rubber bulb		
		2. Dual graduation: mm Hg and mbar(hPa).		
		3. Range: 960 to 1060 mbar with mmHg equivalent		
		4. Dial Diameter of 98 to 100 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. With English User's manual that includes the operation and reset procedure.		
		6. Must be branded and permanently marked on the item		
4	Aneroid Barometer, wall-mount	Functional Specifications: Used to measure the prevailing atmospheric pressure in a locality in real time		
		Performance Specifications: Should be able to measure the prevailing atmospheric pressure in real time		
		Design Specifications:		
		1. Reading standard Scale Range: 960 mbar to 1060 mbar		
		2. Dual graduation: mmHg and mbar(hPa)		
		3. Dial Diameter: 98 mm-130 mm		
		4. Materials: plated bezel, scratch-free cover glass, and plastic base		
		5. Shock resistant, heat resistant		
		6. With English User's manual that includes the operation and reset procedure.		
		7. Must be branded and permanently marked on the item		
5	Compass, Magnetic	Functional Specifications: Used to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field		
		Performance Specifications: Should be able to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field		
		Design Specifications:		
		1. Outside Diameter: 48-50 mm		
		2. Needle mounted in an Aluminum case with clear, scratch-free plastic or glass face		
		3. Graduated dial marked in cardinal points (North, South, West, East, Northwest, Northeast, Southwest, and Southeast).		
		4. Must be branded and permanently marked on the item		
6	Dissecting Set with pan	Functional Specifications: Used to perform a wide variety of dissections.		
		Performance Specifications: Must be able to aid in classifying different animal tissues during dissection.		
		Design Specifications:		
		1. 10 pc dissection set that includes the following stainless steel instruments:		
		• 1 piece surgical scissors, minimum length of 110mm		
		• 1 piece fine point/iris scissors, minimum length of 110mm		
		• 1 piece fine point curved forcep, minimum length of 110mm		
		• 1 piece fine point straight tip forcep, minimum length of 110mm		
		• 1-piece tissue forcep/mosquito forcep, curved tip		
		• 1-piece scalpel minimum 4 cm blade length		
		• 1-piece scalpel handle		
		• 1-piece teasing needle angular with chuck		
		• 1-piece teasing needle straight with chuck		
		• 1-piece mall probe and seeker		
		2. In a rectangular vinyl zippered case;		
		3. With 1-piece stainless steel dissection pan (minimum): 254 mm x 178 mm x 38 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. "Stainless steel" shall be embossed or engraved on the items whenever applicable.		
		5. Must be branded and brand new. The brand shall be printed on vinyl zippered case.		
7	First Aid Kit	Functional Specifications: Used to provide immediate medical help in an emergency.		
		Performance Specifications:		
		Must be able to treat minor illnesses and injuries in an emergency.		
		Design Specifications:		
		1. First Aid Quick Reference Guide in English, 1pc		
		2. Sterile Medical Gauge Swab (minimum) 10cm x 10 cm x 12 ply, 100 pcs./pack, 1 pack or 2 packs (50 pcs/pack)		
		3. Adhesive strips/Band -Aid, 50 pcs/pack, 2 packs		
		4. Gloves,disposable, 2 pairs (1-medium and 1-large)		
		5. Hypo allergenic adhesive tape (minimum) 5cm x 5m, 2 rolls		
		6. Triangular bandage/arm sling (minimum) 90cm x 90cm x 120cm, 2pcs		
		7. Safety pins, (minimum) 30 mm - (12 pcs); (minimum) 44mm- (12 pcs)		
		8. Stainless steel bandage scissors, minimum length 14 cm, 2 pcs (no plastic part)		
		9. Betadine, 60ml, 2 bottles (Expiration date shall be at least two years).		
		10. Hydrogen Peroxide, 3% solution as indicated on product label, 60 ml, 1 bot. (Expiration date shall be at least two years.)		
		11. Hand towels or face towels, white color, 6 pcs		
		12. Gauze bandage, (minimum): 5cm x 4m, 2 rolls		
		13. Antiseptic handwash/germicidal soap, 60 gms, 2pcs		
		14. Tourniquet, 2 pcs		
		15. Spirit of ammonia, 30ml, 1 bot. (Expiration date shall be at least two years)		
		16. Burn cream ointment 15g - 20g, 1 tube (Expiration date shall be at least two years.)		
		17. Medical tweezers minimum 8cm, plastic , 2pcs		
		18. Plastic bags, resealable, minimum 100mmx180mm-24pcs; minimum 150mmx230mm-24 pcs		
		19. Cotton balls, minimum 50 balls in a sealed package, 2 packs		
		20. Hot and Cold pack, reuseable, 1 pack		
		21. With water resistant medical emergency rescue bag with handle that can accommodate all of the above listed items.		
		22. All items must be branded and brand new. The brand shall be printed on the packing of each item or on the item whenever applicable.		
8	Gloves, Surgical	Functional Specifications: Used to protect hands from dirt and contamination.		
		Performance Specifications: Must be able to protect hands against dirt, laceration and contamination.		
		Design Specifications:		
		1. Sterile, latex surgical gloves		
		2. Smooth, powder-free and beaded cuff		
		3. Color: White or beige		
		4. Size range: Medium - Large		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		5. Individually sealed pack pair of gloves with brand and type of material printed on it.		
		6. Must be branded and brand new.		
9	Hand Lens, 10x magnification	Functional Specifications: Used for enlarging the appearance of objects 10 times its actual size		
		Performance Specifications: Should be able to enlarge the appearance of objects 10 times its actual size		
		Design Specifications:		
		1. Magnification: x 10		
		2. Diameter (viewable area) 18-20 mm		
		3. Body: Stainless steel;		
10	Hand Lens, 5x magnification	Functional Specifications: Used to produce a magnified image of an object.		
		Performance Specifications: Must be able to magnify the image of an object.		
		Design Specifications:		
		1. Five times (5x) magnification power		
		2. Glass lens; diameter range: 45mm - 50 mm		
		3. Mounted in a circular chrome-plated metal frame with a cylindrical handle		
		4. No sharp edges and other defects		
		5. Safely packed in a box		
		6. Must be branded and brand new. The brand shall be printed on the box.		
11	Hexagonal Weigh Dishes Set, 50mL, 500 pcs/pack	Functional Specifications: Used for containment of relatively small amount of solid or liquid specimens for weighing		
		Performance Specifications: Should be able to contain relatively small amount of solid or liquid specimens for weighing		
		Design Specifications:		
		1. Made of hexagonal shapes plastic; Capacity 50 mL		
		2. Easily bent into pouring spouts to facilitate in sample transfers and reduce the risk of spills.		
		3. Ideal for handling solids or liquids during weighing procedures.		
		4. Flat bottoms and sloping sides allow these disposable dishes to be easily stacked and conveniently stored.		
		5. Must be branded and permanently marked on the item		
		6. Quantity: 500 pcs		
12	Lens Paper, 50's/pack	Functional Specifications: Used to clean the microscope lenses.		
		Performance Specifications: Must be able to clean the microscope lenses.		
		Design Specifications:		
		1. Measures (minimum) 100 mm x 150 mm		
		2. Material: Fine, soft, lint-free paper		
		3. Quantity: 50 sheets/booklet		
		4. Must be packed in a resealable plastic		
		5. Must be branded and brand new. The brand shall be printed on the cover of the booklet.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
13	Microscope, Compound with 4 Objectives	Functional Specifications: Used to view specimen not visible to the naked eye.		
		Performance Specifications: Must be able to focus specimen not visible to the naked eye using the four objectives.		
		Design Specifications:		
		1. Eyepiece: Glass lens, locked-in wide field, 10X with pointer, and with own separate plastic storage case includes an extra 15X eyepiece		
		2. Nosepiece: Quadruple with accurate centering and click stops; easy to turn		
		3. Objectives: With metal casing, glass lens, DIN achromatic objectives are parfocal, par centered, color coded, 4x,10x; retractable 40x, and 100x (oil immersion) with own separate plastic storage case		
		4. Stage: Built in flat, firmly fixed graduated mechanical stage clips and with knobs; minimum 110 mm x 110 mm ; glass slides shall not be displaced when mounted		
		5. Condenser: N.A. 1.25 with iris diaphragm		
		6. Focus: Dual coarse controls with slip clutch and adjustable tension ring; dual lever type fine focus controls; adjustable safety stop. Gives sharp, clear, well-lighted images		
		7. Mirror range: 49mm - 51 mm, 2-sided, plane-concave		
		8. No sharp metal parts and other defects		
		9. With wooden storage case; and immersion oil provided		
		10. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions.		
		11. Manual details:		
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm)		
		b. Size: (minimum) 165 mm x 215 mm Fold (minimum) 330 mm x 215 mm Spread		
		c. Binding: Saddle Staple		
		d. Font type: Arial and Font size (minimum): 10		
		e. Pictures shall be in full color		
		12. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		13. Warranty on parts and labor: 2 years		
		14. Must be branded and brand new. The brand shall be permanently mark on the item.		
14	Microscope, Digital	Functional Specifications: Used to focus specimen with the image viewed through the LCD screen.		
		Performance Specifications: Must be able to show the structure of subcellular organelles.		
		Design Specifications:		
		1. Nosepiece: Triple with 4x, 10x, 40x achromatic objectives and click stop		
		2. Magnification: 40x, 100x, and 400x (1600x with digital zoom)		
		3. Has full color (minimum) 3.5" TFT LCD screen with onboard software		
		4. Digital Camera: 5 MP CMOS sensor (minimum) as indicated in the manufacturer's manual		
		5. With built-in top and bottom LED illumination sources		
		6. 220V; 50/60 Hz power source		
		7. Battery options 4AA		
		8. Stage: (minimum) 88 mm x 88 mm; fully mechanical with metal clips;		
		9. Six position filter wheel		
		10. With 180° rotating LCD screen		
		11. Combination of smooth-finished metal and plastic parts		
		12. Supports up to 32G Memory size		
		13. AC Plug (power) SD Card (32G max) Port(s) In		
		14. With TV/AV output for display on large monitors for classroom or at the laboratory		
		15. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		<ul style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). 		
		16. Warranty on parts and labor: 2 years		
		17. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions.		
		18. Manual details:		
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)		
		Cover: Paper board, 280 gsm (minimum 0.30 mm)		
		b. Size: (minimum) 165 mm x 215 mm Fold		
		(minimum) 330 mm x 215 mm Spread		
		c. Binding: Saddle Staple		
		d. Font type: Arial and Font size (minimum): 10		
		e. Pictures shall be in full color		
		19. Accessories included:		
		a. Minimum 1 GB micro SD card		
		b. USB 2.0 Cable (data transfer)		
		c. Dust Cover		
		d. Rugged canvass carrying case with shoulder strap		
		e. Five (5) prepared slides		
		f. AC Adapter with 4 International Plugs		
		g. AV out cable for viewing on a TV or projector		
		20. Must be branded and brand new. The brand shall be permanently mark on the item.		
15	Pipette, Beral, 1 mL	Functional Specifications: Used to transfer/dispense liquid samples.		
		Performance Specifications: Must be able to transfer/dispense liquid sample up to a volume of 1 mL.		
		Design Specifications:		
		1. One-piece pipette, made from flexible soft non-toxic plastic that has a protuberance on top that serves as liquid retention chamber (Certificate of non-toxicity is required)		
		2. Capacity: 1 mL in 0.25 mL grad interval		
		3. No rubber head		
		4. Total length (minimum): 140 mm		
		5. With molded (embossed) graduations		
		6. Must be brand new		
16	Prepared Slide Set, Microscope, 25 pieces	Functional Specifications: Used to contain the readily mounted and ready to view object/specimen for examination under a microscope.		
		Performance Specifications: Must be able to show the specimen when viewed under a microscope.		
		Design Specifications:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		1. Quantity: Set of 25 pieces glass slides		
		2. Dimensions (Width x Length) minimum: 25 mm x 75 mm		
		3. Thickness (minimum) : 1.0 mm		
		4. Individually sealed and protected by a cover slip/glass cover;		
		5. Clear, distinct and colorful slides of the following: insects (4); plants (7); animals/microbes (7); Human tissues (7)		
		6. Either of the following insects: wing of housefly, mosquito larvae, <i>Drosophila melanogaster</i> , housefly head, aphids.		
		7. Either of the following plants: <i>Volvox</i> , stem of monocotyledon c.s., stem of dicotyledon c.s., monocot leaf epidermis, dicot leaf epidermis, germinated pollen, <i>Hydrilla</i> leaf w.m.		
		8. Either of the following animals/microbes: <i>Hydra</i> budding, <i>Euglena</i> , diatoms, <i>Daphnia</i> w.m., <i>Amoeba proteus</i> , <i>Paramecium</i> w.m., Planaria w.m., Planaria c.s., <i>Ascaris</i> mitosis, <i>Vorticella</i> , lancelet w.m., <i>Escherichia coli</i> , <i>Staphylococcus aureus</i> , <i>Lactobacillus</i> spp.		
		9. Either of the following human tissues: skeletal muscle c.s., small intestine c.s., human white blood cell, cardiac muscle; motor neurons cell w.m., spinal cord c.s., lung section, liver section, nerve cell w.m., meiosis of human sex cells, stomach villi		
		10. Writing the scientific name with correct spelling shall be properly observed.		
		11. Individually and permanently labeled for specimen identification.		
		12. Slides are packed in a fitted plastic box that contains interior padding to prevent breakage.		
		13. No finger-smudged and no chipped edges slide		
		14. Includes instructions on how to clean and properly store the slide in a coated paper-glossy finish minimum 105 mm x 140 mm, Font style: Arial, Font size(minimum): 10, written in American English.		
		15. Must be branded and brand new. The brand shall be permanently marked on the storage box.		
17	Prepared Slide Set, Mitosis and Meiosis	Functional Specifications: Used to guide students through the events of cell division.		
		Performance Specifications: Must be able to compare mitosis and meiosis, and their role in the cell-division cycle.		
		Design Specifications:		
		1. A set of 6 rectangular microscope glass slides with polished edges; with clear and distinct sample specimen.		
		a. <i>Ascaris megalocephala</i> embryology. Sec. of uteri showing maturation stages (meiosis). Polar bodies can be seen.		
		b. Giant chromosomes, smear from salivary gland of <i>Chironomus</i> , carefully fixed and stained		
		c. <i>Lilium</i> , anther t.s., microspore mother cells showing telophase of first and prophase of second (homeotypic) division		
		d. Meiotic and mitotic stages in sec. of <i>Salamandra testis</i> . Many meiotic and mitotic stages can be observed.		
		e. Mitosis, l.s. from <i>Allium</i> root tips showing all stages of plant mitosis carefully stained with iron-hematoxyline		
		f. Mitotic stages in sec. through red bone marrow of mammal		
		2. Dimensions (Width x Length) minimum: 25 mm x 75 mm		
		3. Thickness (minimum): 1.0 mm		
		4. Individually sealed and protected by a cover slip/glass cover;		
		5. Each slide is permanently labeled for specimen identification;		
		6. Writing the scientific name with correct spelling shall be properly observed;		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Slides are kept in a fitted plastic storage box that contains interior padding to avoid breakage		
		8. No finger-smudged and no chipped edges slide		
		9. Includes instructions on how to clean and properly store the slide in a coated paper-glossy finish (minimum 105 mm x 140 mm), Font style: Arial, Font size(minimum): 10, written in American English.		
		10. Must be branded and brand new. The brand shall be permanently marked on the storage box.		
18	Reaction Plates with 6 Wells	Functional Specifications: Used to contain small amount of samples of specimens under study		
		Performance Specifications: Should be able to contain small amount of samples of specimens under study		
		Design Specifications:		
		1. Made of clear, non-toxic plastic material that is free from sharp edges.		
		2. Plate Shape: Rectangular		
		3. Plate Length: 110-120mm		
		4. Plate Width: 85-100mm		
		5. Six Well per Plate		
		6. Well Shape: Circular/ Round		
		7. Well diameter: 30-35 mm		
		8. Well deep: 6-8mm		
		9. Well capacity: 1.6 mL -2.0mL		
		10. Used for soil and water testing		
		11. Must be branded and permanently marked on the item		
19	Sedimentator Tube	Functional Specifications: Used to demonstrate how soil sediments settle in water		
		Performance Specifications: Should be able to demonstrate how soil sediments settle in water		
		Design Specifications:		
		1. 10 1/2 inches - 12 inches height with a diameter of 1 - 1 1/2 inches		
		2. Sealed and leak free		
		3. The body made of clear, transparent plastic tube.		
		4. With different sediment and crystal clear water.		
		5. Functions:		
		a. Use for observing movement, deposition, and layering of sediments and organic materials.		
		b. Observations apply to sedimentary rock formation and fossil formation		
		6. With English User's Manual that includes		
		a. operation guide.		
		b. Guide on how to use		
		c. Student Activity Sheets		
		7. Brand must be permanently marked on the item.		
20	Sling Psychrometer	Functional Specifications: Used to measure relative humidity		
		Performance Specifications: Should be able to measure relative humidity		
		Design Specifications:		
		1. Composed of two red spirit thermometer in Celsius with temperature ranges: -5°C to +50 °C		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		2. Equipment Size: (7 -8 inches long x 1-2inches diameter)		
		3. Built -in Psychrometer Water Reservoir		
		4. Includes a wick for Wet Bulb		
		5. Wick Replacement Kit- containing 4 wicks		
		6. Build in Slide rule construction for quick conversion temperature reading to relative humidity		
		7. Includes additional two thermometers for replacement with individual plastic or hardboard case		
		8. Easy to rotate to determine the relative humidity.		
		9. With English User's Manual that includes:		
		a. Operation Guide		
		b. Maintenance		
		10. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format.		
		b. Shall be saved in a USB 3.0 Flash Drive.		
		c. Shall have a High-Definition resolution of at least 1080p.		
		d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.		
		e. Shall comply an aspect ratio of 4:3.		
		f. Shall have a cover video pane containing the equipment name and a video pane for each video content.		
		g. The video, voiceover (audio), and subtitle shall be in sync.		
		h. The training video shall cover all the above requirement (video contents).		
		11. Must be branded and permanently marked on the item		
21	Soil pH, Moisture, Sunlight Meter	Functional Specifications: Used to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time		
		Performance Specifications: Should be able to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time		
		Design Specifications:		
		1. Compose of two electrodes, 7 inches -10 inches long		
		2. pH/ Moisture/ Sunlight Switch		
		3. pH Range: 3.5 - 8 pH (3.5-6.5 Acidic, 7-8 Alkaline)		
		4. Moisture Range: 1-10 (1-3 Dry; 4-6 Normal; and 7-10 Wet)		
		5. Light Range: 0 - 2000 lux (0-200 Low, 200-500 Low+, 500-1000 Normal, and 1000-2000 High)		
		6. With English User's Manual that includes:		
		a. Operation Guide		
		b. Procedure on the proper use, handling and storage.		
		c. Student Activity in using the item.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		8. Brand must be permanently marked on the item.		
22	Soil/Test Sieve*	Functional Specifications: Used to separate and segregate different size soil particles		
		Performance Specifications: Should be able to separate and segregate different size soil particles		
		Design Specifications:		
		1. Diameter range: 8 inches - 10 inches		
		2. Mesh sizes: 5 Mesh, 10 mesh, 35 Mesh, 60 mesh, 120 mesh, and 230 mesh		
		3. Made of stainless steel metal		
		4. Set of Six Sieves		
		5. Includes lid and catch pan		
		6. Must be branded and permanently marked on the item		
23	Thermometer, Classroom, wall-mount	Functional Specifications: Used to determine the prevailing air temperature inside a room in real time		
		Performance Specifications: Should be able to determine the prevailing air temperature inside a room in real time		
		Design Specifications:		
		1. Alcohol filled red color, glass tube type		
		2. Overall length: 760 mm (minimum)		
		3. Tube containing liquid column: 23 inches (minimum)		
		4. Temperature range (dual): 4.1 Centigrade: -40°C to +50°C 4.2 Fahrenheit: -40°F to +120°F		
		5. Brand must be permanently marked on the item.		
24	Tong, Beaker	Functional Specifications: Used to hold heated beakers.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Must be able to secure hot beakers.		
		Design Specifications:		
		1. Scissor-like tool with plastic-coated jaws		
		2. Made of minimum 6.0 mm smooth finish chrome-plated steel		
		3. With flat riveted joint		
		4. Total length (minimum) : 254 mm		
		5. Holds beakers from 50mL to 1000 mL		
		6. Safely packed in a box		
		7. Must be branded and brand new. The brand shall be printed on the box.		
25	Wash bottle, plastic, 250 mL	Functional Specifications: Used to store and dispense water for diluting solutions, washing precipitates and rinsing glass wares.		
		Performance Specifications: Must be able to store and dispenses water in diluting, washing precipitates and rinsing activities.		
		Design Specifications:		
		1. Translucent and non-toxic plastic material (Certificate of non-toxicity is required)		
		2. Cylindrical body shape		
		3. Easy squeeze dispensing; no leaks		
		4. Capacity: 250 mL.		
		5. Screw type closure with its angled stem and draw tube molded in one piece		
		6. Must be brand new.		
LOT 13: MATHEMATICAL MANIPULATIVES (MI-LOT 13)				
1	Algebra Tile Set, plastic	Functional Specifications: Used to demonstrate algebraic concept up to second degree polynomial.		
		Performance Specifications: Must be able to represent mathematical expressions and equations to introduce and foster algebraic concepts, including adding and subtracting polynomials, factoring trinomials, and the Zero Principle.		
		Design Specifications:		
		1. Algebra Tiles should come in a set of 30 that includes the following:		
		a. 6 pcs of Square Tile (Squared Variable Tile) about 89mm x 89mm x 1mm (minimum) in size and color blue		
		b. 16 pcs of Long Tile (Variable Tile) about 89mm x 21mm x 1mm (minimum) in size and color green		
		c. 24 pcs of Ones Tile (Constant Tile) about 21mm x 21mm x 1mm (minimum) in size and color yellow		
		Note: Each kind of tile should have RED back color to denote the Negative side of the tiles.		
		2. Made of plastic and has no sharp edges.		
		3. Must be stored in a plastic storage box with a capacity to store 1,300 pcs of Algebra Tiles.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the plastic storage.		
2	Base Ten Blocks	Functional Specifications: Used to demonstrate abstract mathematical concept of the number system such as one-to-one correspondence, place value, and basic addition and subtraction		
		Performance Specifications: Must be able to demonstrate a number's value and place value and vice versa.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Made of plastic, smooth surface and edges, and free from toxic materials		
		2. The set includes 100 units (1 cm x 1 cm x 1 cm [minimum]), 10 rods (1 cm x 1 cm x 10 cm [minimum]), 10 flats (1 cm x 10 cm x 10 cm [minimum]), and 1 cube (10 cm x 10 cm x 10 cm [minimum]).		
		Note: Each block should have distinct color from each other (e.g.: Unit - Red, Rod - Yellow, Flat - Green, Cube - Blue).		
		3. Comes with a plastic container with cover to accommodate all the items.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the plastic container.		
3	Beads	Functional Specifications: Used to reinforce counting, sorting, patterning and sequencing.		
		Performance Specifications: Must be able to scaffold learners in counting and grouping of numbers, colors, patterns, etc.		
		Design Specifications:		
		1) Bead Material: Plastic, spherical, smooth surface		
		2) With a hole that passes through the center		
		3) Bead diameter: 15 mm to 18 mm		
		4) Assorted color, at least 5 colors consisting of 60 pieces each color.		
		5) Comes with a plastic transparent storage container with cover		
		6) The items shall be free from toxic materials.		
		7) Comes with nylon string of 5-6 meters long that fit loosely to beads hole		
4	Circle Area Demonstrator	Functional Specifications: Used to demonstrate area of a circle.		
		Performance Specifications: Performance: Must be able to show/demonstrate derivation of circle's area and how dimensions of a parallelogram is related to it.		
		Design Specifications:		
		1. Material: Plastic		
		2. Circle Diameter: 196 mm (minimum) - Each half comes in different colors		
		3. Thickness: 5 mm (minimum)		
		4. Dissectible into at least 12 sectors		
		5. Comes with base for mounting the circle and the sectors.		
		6. Shall be free from toxic materials.		
5	Compass, Drawing, student type	Functional Specifications: Used to draw/construct arcs, semi-circles and circles.		
		Performance Specifications: Must be able to draw/construct arcs, semi-circles and circles.		
		Design Specifications:		
		1. Compass, two legs, stainless steel;		
		2. Length: 120mm - 150mm;		
		3. With pencil adaptor attached at or integrated on one end of one of the legs. The said adaptor must be able to adapt, also, to any kind of pencil available in the local market;		
		4. Stainless Steel: Well-polished and smooth;		
		5. Comes with transparent plastic case or box; and		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		6. Brand must be permanently printed on the case.		
6	Cuisenaire Rods, set of 5	Functional Specifications: Used to provide an interactive, hands-on way to explore mathematics and learn mathematical concepts, such as the four basic arithmetical operations, working with fractions and finding divisors.		
		Performance Specifications: Must be able to demonstrate four fundamental operations, part-to-whole concept, decimals and other concepts related to number sense and measurement.		
		Design Specifications:		
		1) Made of hard, smooth finish plastic materials.		
		2) One (1) set is composed of 74 cuisenaire rods of different colors.		
		3) Each color represents a specific rod length.		
		4) Rod Lengths are: 1cm -white, 2cm - red, 3cm - gray, 4cm - pink, 5cm - yellow, 6cm - green, 7cm - dark green, 8cm - brown, 9cm - blue, and 10cm - orange.		
		5) Comes in a plastic storage container with cover that accomodates 5 sets of cuisenaire rods.		
		6) The item shall be free from toxic materials.		
		7) Brand must be permanently printed on the case.		
7	Elapsed Time (Clock) Set	Functional Specifications: Used to demonstrate time and other related concepts.		
		Performance Specifications: Must be able to represent and demonstrate time using hour hand and minute hand.		
		Design Specifications:		
		1. A set includes:		
		a. Two Twelve (12) hour demonstration clock, magnetic		
		b. Segmented timeline, 24-hour timeline (AM and PM) which makes up of 4 segments		
		c. Removable guide numbers		
		d. Start and End arrows		
		2. Dial diameter measures 24-26 cm		
		3. The hour number must be printed in Hindu Arabic numeral and with corresponding minute(s) number in the same numeral format.		
		4. The item shall be free from toxic materials.		
		5. Brand must be permanently printed on the case.		
8	Geoboard, 11 x 11	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons.		
		Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.		
		Design Specifications:		
		1. Double sided geoboard - square pattern on one side (11 x 11), circle on the other;		
		2. Made of plastic material and comes in any color;		
		3. The surfaces and edges must be smooth, no warps, must sits flat when laid on the table;		
		4. Board Dimensions (W x L): 229 mm x 229 mm (minimum);		
		5. Edging Height (all sides): 6 mm from the board (minimum);		
		6. Board and Edging Thickness: 3 mm (minimum);		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Array Pin Diameter: 3 mm (Minimum);		
		8. Array Pin Height: 5 mm (Minimum);		
		9. Comes with a transparent plastic case;		
		10. Comes with Instruction Manual in English with illustrations;		
		11. Comes with assorted size and color rubber bands (25 pcs); and		
		12. Brand must be permanently printed on the case		
9	Geoboard, 5 x 5	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons		
		Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.		
		Design Specifications:		
		1) Enables the students to perform different kinds of shapes (like square, triangle, circle, etc.) using rubber bands.		
		2) On the top surface is the Square Geoboard with 25 guiding posts arranged 5 x 5 (forming a square) at 40mm distance apart between centers.		
		3) On the bottom surface is the Circle Geoboard with 13 guiding posts. Twelve (12) of these guiding posts are arranged at 30° apart on a circle of 150mm diameter while the remaining one (1) guiding post is on the center of the said circle.		
		4) Made of plastic, color blue.		
		5) Board Dimensions (W x L): 200mm x 200mm (minimum)		
		6) Guiding post approximate Diameter: 6mm (minimum)		
		7) Guiding post approximate Height: 20mm (minimum)		
		8) Approximate Height of the Base (Edging Height): 25mm (minimum)		
		9) Board Thickness: 3-5mm		
		10) Comes with a plastic case with content description on its cover.		
		11) The surfaces and edges of the Geoboard and its Case must be smooth.		
		12) Comes with Instruction Manual in English.		
		13) Brand must be permanently printed on the case.		
		Note: There must be no warping of the board and base. The Geoboard must be flat when laid on a table.		
10	Geostrips	Functional Specifications: Used to make and represent different shapes.		
		Performance Specifications: Must be able to show/demonstrate different kinds of angles and shapes.		
		Design Specifications:		
		1. The strips are made of plastic minimum of 1.8 mm thickness and minimum of 18 mm wide in assorted colors with rounded ends;		
		2. Comes in various lengths ranging from 50 mm to 350 mm.		
		Example:		
		Red:		
		a) Shortest: 93-94mm		
		b) Shorter: 169-170mm		
		c) Longest: 323-324mm		
		Blue:		
		a) Shortest: 124-125mm		
		b) Longest: 233-234mm		
		Yellow:		
		a) Shortest: 150-151mm		
		b) Longest: 283-284mm		
		White:		
		a) Shortest: 175-176mm		
		b) Longest: 233-234mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		3. They are designed to be fastened together with a plastic coated brads or plastic coated round head fasteners to form plane geometric figures.		
		4. One (1) set consists of 68 strips, a minimum of 100 pieces plastic coated brads and a protractor.		
		5. The set comes in a transparent plastic case for proper storage.		
		6. The items shall be free from toxic materials.		
		7. Brand must be permanently marked on the plastic case.		
11	Ghost Grid Whiteboard, Mobile Magnetic	Functional Specifications: Used to aid classroom instructions especially in graphical representations such as linear, quadratic, polynomial, histogram, normal curve, etc.		
		Performance Specifications: Must be able to move from one place to another and to clearly show illustrations that do not exceed from 1 meter vertically and 1.2m horizontally guided with lines with 20mm spacing (horizontally and vertically).		
		Design Specifications:		
		1. Mobile Magnetic Ghost Grid Whiteboard;		
		2. Material: Painted Steel		
		3. Frame: Aluminum, 1" edging;		
		4. Surface Material: Magnetic Painted Steel;		
		5. Grid Pattern: 2" x 2", ghots grid;		
		6. Full Dimensions: 74-75"W x 23-24"D x 69-70"H;		
		7. Board Dimensions: 72-73"W x 40-41"H;		
		8. Base Dimensions: 74-75"W x 23-24"D;		
		9. Tray Style: Full length		
		10. Casters: 4 pieces, 2-inch casters, two with locking brakes;		
		11. Must be properly packed using shipping carton.		
12	Linking Cubes	Functional Specifications: Used to assist with the understanding of mathematical concepts		
		Performance Specifications: Must be able to interlock together to build various shapes and structures		
		Design Specifications:		
		1) Linking plastic cubes:		
		a. Dimension: 1 cm x 1 cm x 1 cm (minimum)		
		b. Material: Non-toxic plastic that comes in assorted colors (5 colors with at least a minimum of 100 pieces per color)		
		c. With interlocking feature for connecting the cubes.		
		2) Comes with plastic transparent storage bucket with cover.		
		3) Fitting is push fit which can be assembled or disassembled without extra effort.		
		4) Shall be free from toxic materials.		
		5. Brand must be permanently marked on the storage.		
13	Model, Basic 3D Geometrical Collapsible	Functional: Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons.		
		Performance: Must be able to demonstrate geometrical relationships between polygons (2D) and polyhedrons (3D) in terms of deriving formula on surface area and volume.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Set includes 12 solids made of clear plastic with rounded corners and edges, and 12 folding nets in 5 or 6 colors made from soft plastic to fit inside the corresponding solids:		
		2. Base size of solids: 7.8 to 10.5cm		
		Height of solids: 9.5 to 10.5 cm		
		3. Pairs of solid prism and pyramid shall of the same base and height the following:		
		a,b) Cube and Square pyramid		
		c,d) Cylinder and Cone		
		e,f) Triangular prism and Triangular pyramid		
		g,h) Rectangular prism and Rectangular pyramid		
		i,j) Pentagonal prism and Pentagonal pyramid		
		k,l) Hexagonal prism and Hexagonal pyramid		
		4. With activity guide.		
		5. Comes with a plastic transparent storage container with cover that can accommodate all the solids and the activity guide.		
		6. Shall be free from toxic materials.		
14	Model, Basic 3D Geometrical Solids	Functional Specifications: Used to represent basic three-dimensional figures.		
		Performance Specifications: Must be able to demonstrate geometrical concepts related to properties of geometrical solids.		
		Design Specifications:		
		1.) At least 17 types of Geometrical Solids which includes these core shapes:		
		a) Cube: 9.5-10.5cm x 9.5-10.5cm x 9.5-10.5cm		
		b) Cone: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		c) Cylinder: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		d) Hexagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		e) Hexagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		f) Pentagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm		
		g) Pentagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm		
		h) Rectangular prism: 9.5-10.5cm x 5-6cm x 9.5-10.5cm		
		i) Square pyramid: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm		
		j) Triangular prism: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm;and		
		h) Triangular pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm		
		i) Sphere: Diameter of Great Circle = 9.5-10.5cm		
		j) Hemisphere: Diameter of Great Circle = 9.5-10.5cm		
		k) Square prism: 9.5-10.5cm x 5-5.5cm x 5-5.5cm		
		l) Small cube: 5-5.5cm x 5-5.5cm x 5-5.5cm		
		m) Small Triangular Prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm		
		n) Small Cylinder: Height = 9.5-10.5cm; Base diameter = 5-6cm		
		3) Made of hard plastic		
		4) Comes in a transparent plastic container with cover to accommodate the 17 or more types of geometric solids.		
		5) Surface finish is smooth on all items.		
		6) Brand must be permanently printed on the case.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
15	Pattern Blocks, 250 pcs/set	Functional Specifications: Used to explore mathematical concepts, including congruence, similarity, symmetry, area, perimeter, patterns, functions, fractions, and graphing		
		Performance Specifications: Used to demonstrate different kinds of polygons.		
		Design Specifications:		
		1. One (1) set of pattern blocks contains a total of 250 pieces of six geometrical shapes and six colors - 25 each of hexagons and squares; 50 each of trapezoids, triangles, parallelograms, and rhombi.		
		2. Made of smooth surface plastic material.		
		3. Minimum thickness: 5 mm		
		4. Comes with a plastic transparent storage container with cover.		
		5. The items shall be free from toxic materials.		
		6. Brand must be permanently marked on the storage container.		
16	Pentominoes	Functional Specifications: Used to develop spatial thinking		
		Performance Specifications: Must be able to demonstrate concepts pertaining to perimeter and area using the 12 kinds of 5-squared geometric shape.		
		Design Specifications:		
		1. Geometry puzzle consists of 12 pentominoes, each are made up of 5 equal-sided squares connected edge-to-edge. Dimension of square is 2.54cm x 2.54cm (minimum).		
		2. Twelve (12) pentominoes are classified as the letters F, I, L, N, P, T, U, V, W, X, Y, and Z; each are made up of sturdy plastic. Comes in assorted colors that are free from toxic materials.		
		3. Comes in set of 6 equivalent to 72 pieces (minimum) contained in a plastic storage box.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the storage.		
17	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	Functional Specifications: Used to represent integers and demonstrate fundamental operations on integers.		
		Performance Specifications: Must be able to demonstrate/represent set of numbers, skip counting and integers; perform fundamental operations on integers.		
		Design Specifications:		
		1) Material: Hard Plastic		
		2) Minimum of 200 pieces per set (double-sided color)		
		3) Must have smooth surface and edges		
		4) Chip's diameter: 22mm (minimum)		
		5) Chip's thickness: 1mm (minimum)		
		6) Comes with a transparent plastic container with cover		
		7) Shall be free from toxic materials.		
		8) Brand must be permanently marked on the item.		
18	Probability Kit	Functional Specifications: A set of mathematical manipulative used to demonstrate different concept-formation activities in probability.		
		Performance Specifications: Must be able to demonstrate probability concepts using cards, counters, dice, spinners, coins, bills and/or combination of these mathematical manipulatives.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Demonstrate probability, random and selective sampling.		
		2. Class kit, at least 180 pcs in a box for large group or individual learning.		
		Consist of the following:		
		a) 30 combination of activities and teacher demonstration on cards		
		b) 52 pcs (1 set) playing cards		
		c) 9 pcs different spinners;		
		d) 50 pcs coins;		
		e) 15 pcs polyhedral number dice;		
		f) 3 pcs dot dice;		
		g) 30 two-color (back-to-back) counters or red and yellow chips;		
		h) 5 pcs coin dice		
		i) 8 pcs number dice		
		3. Comes with transparent plastic container with cover.		
		4. Shall be free from toxic materials.		
		5. Brand must be permanently marked on the container.		
19	Tangrams, set of 30	Functional Specifications: Used to introduce spatial relationships		
		Performance Specifications: Must be able to use as an aid in developing mathematical concepts such as area, perimeter and patterns.		
		Design Specifications:		
		1) Tangram includes seven geometric shapes made up of five triangles (two small triangles, one medium triangle, and two large triangles), a square, and a parallelogram that are distinct in color.		
		2) The three different-size Tangram triangles are all similar, right isosceles triangles. Thus, the triangles all have angles of 45°, 45°, and 90°, and the corresponding sides of these triangles are proportional.		
		3) All the angles of the Tangram pieces are multiples of 45—that is, 45°, 90°, or 135°, and that the small Tangram triangle is the unit of measure that can be used to compare the areas of the Tangram pieces.		
		4) Material: Plastic that are free from toxic materials.		
		5) The size of the largest square that the 7 tangram pieces can form is 114 x 114 mm (minimum) with thickness of 7mm (minimum).		
		6) In this set, there is at least 6 distinct color.		
		7) Comes with a sturdy plastic that stores set of 30 tangram (210 pieces) and free from toxic materials.		
		8) Shall be free from toxic materials.		
		9) Brand must be permanently marked on the item.		
LOT 19: FORCE, MOTION AND ENERGY KITS (MI-LOT 19)				
1	Advanced Electromagnetism Kit	Functional Specifications: used to demonstrate the relationship between electricity and magnetism		
		Performance Specifications: should be able to demonstrate the relationship between electricity and magnetism		
		Design Specifications:		
		1. The kit contains the following:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. 2 -Bar Magnets: 148-155 mm X 10-12 mm X 7-8 mm; magnet strength: can suspend load 2 times its weight suspended end-to-end at north or south pole of the magnet, correctly labeled and or color coded to indicate North and south poles		
		b. 6 -Magnetic compass, 18-20 mm diameter, correct orientation of N-S poles		
		c. 2 -U-Magnets, 5.98-6 mm X 15-16 mm cross section X 98-100 mm long, jaw opening: 48-50 mm; magnet strength: can suspend 2 times its weight suspended at north or south pole of the magnet; correctly labeled and or color coded to indicate North and south poles		
		d. 1 -Magnetic field mapper-8.5-9 cm X 15.5-16 cm clear transparent casing contains iron filings immersed in non mold forming viscous liquid, should clearly show magnetic lines		
		e. 1 -spool magnet wire (insulation coated) #20 (or 0.8 mm - 0.9 mm dia), 500-600 g.		
		f. 1 - steel rod 10.5-12 mm dia x 98-105 mm long		
		g. 2 -copper wire solid, #14 (1.6 mm-1.7 mm dia), insulated,14.5-15 cm long each wire		
		h. 3- wood blocks 23-25 mm X 73-75 mm X 98-100 mm with pilot holes that run through center of block		
		2. Comes with plastic container that can accomodate the items indicated above.		
		3. Brand permanently marked on plastic container		
2	Air Blower	Functional Specifications: Used to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle.		
		Performance Specifications: Should be able to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle		
		Design Specifications:		
		1. Electric air blower with variable speed control from 0 to 14000 RPM, volute type, 400 W motor rating, 220 to 240 VAC 60 Hz power supply,		
		2. With English User's Manual that includes operation guide		
		3. With cartoon transport box		
		4. Brand permanently marked on the item		
3	Archimedes Principle Set	Functional Specifications: Used to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent lost of weight of the immersed object is equal to the weight of the displaced liquid		
		Performance Specifications: Should be able to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent lost of weight of the immersed object is equal to the weight of the displaced liquid		
		Design Specifications:		
		1. The item consists of:		
		a) Bucket and Plummet: Transparent		
		bucket with handle stainless steel/brass, plummet white color with hook;		
		Capacity: 100 mL		
		Compose of bucket and plummet with graduation. Permanently marked accurate divisions on plummet and bucket representing different volume levels. Divisions should be aligned when the plummet is inserted into the bucket.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Overflow can 450 mL capacity		
		Catch bucket		
		spring scale 2N/200g		
		Material: transparent plastic		
		2. Fixations and supports should be stable during activity		
		3. With English Manual that includes User's Guide		
		4. Contained in a styropor storage box, styropor box in transport packaging		
		5. Brand permanently marked on packaging		
4	Basic Electronics Kit	Functional Specifications: Used to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts		
		Performance Specifications: Should be able to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts		
		Design Specifications:		
		1. Each component is mounted on individual plastic board with color coded binding post terminals depending on mounted components (see No. 4 for color code of binding post terminals) Dimensions: 58-60 mm width x 78-80 mm length x 4.5-5 mm height		
		2. Component name and symbol should be permanent (embossed or etched) and painted black on conspicuous location on board.		
		3. With external binding post connectors that can accommodate 4 mm banana plugs, color coded encapsulation: black for negative, red for positive, yellow for non-polar terminals		
		4. The Kit should contain the following:		
		a. 5-Resistors: (2-100 Ω , 2 watts; 1-1000 Ω , 2 watts; 1-10 k Ω , 2 watts; 1-100 k Ω , 2 watts), binding post terminals: all yellow 2-Rectifier Diodes, IN 4002, binding post terminals: black for negative, red for positive 1-LED, large size, binding post terminals: black for negative, red for positive		
		b. 1-NPN transistor, 2N3440 or 2N3439 or equivalent, binding post terminals: black for negative, red for positive		
		c. 2-Capacitor 1000 μ F (standard), 25 V, binding post terminals: black for negative, red for positive		
		d. 1-Variable Resistor, large, rotary, carbon, 5 k Ω mono, binding post terminals: all yellow NOTE: industry standard tolerances applicable in all values of resistance and capacitance)		
		5. Items placed in plastic storage box, 1 box per set		
		6. Brand permanently marked on the item		
5	Basic Lens Set, acrylic	Functional Specifications: Used to demonstrate refraction of light		
		Performance Specifications: Should be able to demonstrate refraction of light		
		Design Specifications:		
		1. Set of 7 lenses, acrylic material (subject to material testing at DOST or any DOST accredited testing facilities), secured in compartmentalized plastic storage box, with the following types and diameters:		
		1-double convex, 48-52 mm diameter		
		1-plano convex, 48-52 mm diameter		
		1-double concave, 48-52 mm diameter		
		1-plano concave, 48-52 mm diameter		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		1-convex-concave lens, 48-52 mm diameter		
		1-concave-convex lens, 48-52 mm diameter		
		1-double convex lens, 73-77 mm diameter		
		2. Must be contained in one plastic storage box.		
		3. No sharp edges.		
		4. Free from toxic materials certification		
		5. Brand name permanently marked on storage box		
6	Coefficient of Linear Expansion	Functional Specifications: Used to verify coefficient of linear expansion of some metals		
		Performance Specifications: Should be able to verify coefficient of linear expansion of some metals		
		Design Specifications:		
		1. With steam jacket pipe, made of brass, 498-500 mm long x 23-25 mm dia., with steam inlet and outlet, with attachment tube for inserting rubber stopper which in turn is inserted with thermometer		
		2. Steam jacket pipe supported by a rigid metal base; with alignment and lock mechanism when inserting expanding rod under study, 26.9-27.2 in X 4.375-4.5in X 1.375-1.5in (L x W x T)		
		3. With dial dial gauge 0-10 mm range, 0.01 mm readability		
		4. Supplied with 3.8-4 mm x 498-500 mm brass, copper, steel rods; rods should be free from sharp, pointed edges		
		5. With English User's Manual that includes operation guide		
		6. Brand permanently marked on the item		
7	Connector, Black (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	Functional Specifications: Used to effectively interconnect components in an electrical circuit		
		Performance Specifications: Should be able to effectively interconnect components in an electrical circuit		
		Design Specifications: # 18 copper, AWG stranded, end to end 345-450 mm gross length, with insulated brass alligator clip, 18 mm - 20 mm jaw length, on one end and 4 mm brass banana plug, on the other end soldered; all black		
8	Connector, Red (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	Functional Specifications: Used to effectively interconnect components in an electrical circuit		
		Performance Specifications: Should be able to effectively interconnect components in an electrical circuit		
		Design Specifications: # 18 copper, AWG stranded, end to end 345-450 mm length, with insulated brass alligator clip, 18 mm-20 mm jaw length, on one end and 4 mm brass banana plug, on the other end, soldered, all red		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
9	Connector, Yellow (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	Functional Specifications: Used to effectively interconnect components in an electrical circuit		
		Performance Specifications: Should be able to effectively interconnect components in an electrical circuit		
		Design Specifications: # 18 copper, AWG stranded, end to end 345-450 mm length , with insulated brass alligator clip, 18 mm-20 mm jaw length, on one end and 4 mm brass banana plug, on the other end soldered, all yellow		
10	DC Ammeter	Functional Specifications: Used to measure DC current in electrical circuit		
		Performance Specifications: Should be able to measure DC current in an electrical circuit		
		Design Specifications:		
		1. Analog, dual range selectable:-0.2 - 0 - +0.6A/0.02 read;-1.0 -0- +3.0A/0.1 read, ± 2.5% full scale, analog		
		2. Dial plate dimensions: 93-95 mm width x 83-85 mm length,		
		3. Overall encasement dimensions : 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color		
		4. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal)		
		5. External zero-adjust calibration		
		6. With English User's Manual that includes operation guide		
		7. Brand permanently marked on the item		
11	DC String Vibrator, string included	Functional Specifications: Used to demonstrate standing waves on a string		
		Performance Specifications: Should be able to demonstrate standing waves on a string		
		Design Specifications:		
		1. Utilizes an offset-weighted shaft on a DC motor		
		2. Input voltage (0 volts -6 volts DC)		
		3. Vibration Frequency: controlled by stepless attenuator		
		4. With steel mounting platform, binding posts for external wire connection		
		6. With Operation Manual in English		
		7. Brand permanently marked on the item		
12	DC Voltmeter	Functional Specifications: Used to measure DC voltage across components in an electrical circuit		
		Performance Specifications: Must be able to measure DC voltage across components in an electrical circuit		
		Design Specifications:		
		1. Analog, dual range selectable -1V -0- +3V/0.1 read-5 0- +15V/ 1.0 read ±2.5% full scale, analog		
		2. Dial plate dimensions: 93-95 mm width x 83-85 mm length,		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		3. Overall encasement dimensions : 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color		
		4. Binding post terminals, threaded, can accommodate standard 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal)		
		5. External zero-adjust calibration		
		6. With English User's Manual that includes operation guide		
		7. Brand permanently marked on the item		
13	Diffraction slits & Diffraction grating Set	Functional Specifications: Used to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction		
		Performance Specifications: Should be able to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction		
		Design Specifications:		
		The set is composed of:		
		1) Diffraction slits consist of:		
		1 frame single slit, 1 frame double slits; grating size: 34-36 mm x 16-18 mm; frame size: 48-50 mm x 48-50 mm x 1.9-2.5 mm thick		
		2) Diffraction Gratings consist of:		
		1 frame 50 lines/mm, 1 frame 100 lines/mm, 1 frame 300 lines/mm, 1 frame 600 lines/mm, grating size: 34-36 mm x 16-18 mm, frame size: 48-50 mm x 48-50 mm x 1.98-2 mm thick		
		3) Each frame placed in compartmentalized storage box		
		4) Brand permanently marked on the item		
14	Digital Geiger-Muller Counter with radioisotopes samples	Functional Specifications: is used to measure alpha, beta, and gamma radiation		
		Performance Specifications: should be able to measure alpha, beta, and gamma radiation		
		Design Specifications:		
		MAIN UNIT		
		1. Main unit: Digital Geiger-Muller Counter; measures alpha, beta, gamma radiation;		
		2. Manufacturer should be accredited by their respective Nuclear Regulatory Institute/Agency and shall provide calibration certificate for each item issued by the Nuclear Institute/Agency of its country of origin.		
		3. Units of Measurement: milli Roentgen per hour (mR/hr), micro Sievert per hour (μ Sv/hr), Counts per Minute (CPM), digital readout		
		4. Range: 0.001 mR/hr to 1000 mR/hr		
		5. With provision for connecting to desktop/laptop PC, comes with software and appropriate connectors		
		6. Dimensions: 4-7inches long x 3-4 inches wide x 1-2 inches thick		
		7. Runs on dual power supply: dry cell and external power, comes with dry cell and adapter for external DC input		
		8. With English User's Manual that includes operation guide		
		9. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		10. The offered brand of the item must be an international brand.		
		11. Brand permanently marked on the item.		
		Functional Specifications: is used to provide sources of alpha, beta, and gamma radiations		
		Performance Specifications: should be able to provide sources of alpha, beta, and gamma radiations		
		Design Specifications:		
		SET OF LEGAL RADIOISOTOPE SAMPLES		
		1. Set of sample legal radioactive sources, each is enclosed in a permanently shield disk: 2.98-3 mm thick x 23-25 mm dia.		
		2. Each disk is identified by radio nuclide, amount of activity in microcuries, half life and type of radiation		
		The words "Caution - Radioactive Material" appear on the label of each source <i>0.1 microcurie - alpha source: Polonium 210 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</i> <i>0.1 microcurie - beta source: Strontium 90 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</i> <i>1 microcurie -gamma source: Cobalt 60 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</i> All 3 radioisotope samples stored in a safe box and properly labeled		
		3. Brand permanently marked on the item; with English User's Manual that includes operation guide (Permanent and properly labeled; labels are scratch-resistant)		
15	Dry Cell Holder (size D)	Functional Specifications: Used to securely mount size D dry cell in place		
		Performance Specifications: Should be able to securely mount size D dry cell in place		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Design Specifications:		
		1. Single Holder for size D dry cell, snap-on type;		
		2. With built-in nickel plated brass plate connectors;		
		3. Holders can be interconnected in series or parallel;		
		4. Plastic body, should be sturdy, thickness: 1.98-2 mm		
		5. Crack resistant when dropped from 91 cm height, mounted with dry cell;		
		6. Any color		
		7. Brand name permanently marked on the item		
16	Dry Cell, 1.5 volts, size D	Functional Specifications: Used to provide 1.5 volts DC power source for a basic electrical circuit		
		Performance Specifications: Should be able to provide 1.5 volts DC power source for a basic electrical circuit		
		Design Specifications:		
		1. industry standard size D 1.5 volt dry cell		
17	Engine Model (Internal Combustion)	Functional Specifications: Used to simulate the operation of a 4-stroke cycle gasoline engine		
		Performance Specifications: Should be able to simulate the operation of a 4-stroke cycle gasoline engine		
		Design Specifications:		
		1. Cross section model of a 4-stroke cycle gasoline engine model, Size: 13.5 -14 inches x 7.8-8 inches x 6.8-8 inches		
		2. Material: cast alloy construction, mounted on stable base		
		3. Internal sections in different colors to indicate air, fuel, and gas mixtures and exhaust gas contents. The carburetor is shown in section.		
		4. The crankshaft can be rotated by hand wheel to simulate the operating cycle of 4-stroke cycle gasoline engine; with electrical contact for illuminating a a 3-volt lamp as spark plug to simulate ignition		
		5. Base with illustration and correct part names and show the following parts correctly: crank case, crank shaft, connecting rod, cylinder block, piston, intake valve, exhaust valve, push rod, spark plug, rocker arm, exhaust manifold, crank shaft gear, cam shaft gear, cam shaft, contact point, carburetor, needle valve, float, throttle valve, intake manifold		
		6. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		7. Brand name permanently marked on the item		
18	Flask, Florence, glass, 500 mL	Functional Specifications: Used to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina'		
		Performance Specifications: Should be able to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina'		
		Design Specifications:		
		1. standard 500 mL capacity		
		2. Round bottom		
		3. NO Graduations		
		4. Made of glass		
		5. Brand name permanently marked on the item		
19	Force Table	Functional Specifications: Used to demonstrate the vector nature of forces		
		Performance Specifications: Should be able to demonstrate the vector nature of forces		
		Design Specifications:		
		1. Table: material-cast iron, diameter: 39.5-40 cm, with stable stand support, 29-40 cm height		
		2. With leveling screw		
		3. 360° protractor scale, 1° resolution		
		4. Can demonstrate combination of at least 3 coplanar forces in equilibrium		
		5. Includes the following accessories:		
		a. 3 pieces load hangers -100 grams each		
		b. additional slotted masses to be loaded on each load hanger: 3 pieces-100 grams, 3 pieces- 50 grams, 3 pieces- 20 grams, 3 pieces- 10 grams		
		c. 3 pieces pulley clamps with guide pulley to be clamped on the Force Table		
		d. 1 piece center rod/ post, nickle plated metal, threaded to be mounted on the center of the Force Table		
		e. 1 piece center/ fastening ring, 33-35 mm diameter x 1.98-2 mm thickness, nickle plated metal		
		f. 4 meters string for hanging loads (crochet type), can suspend 500 grams load with out breaking		
		6. With English User's Manual that includes Assembly and Operation Guide		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
		8. Brand name permanently marked on the item.		
20	Fuse Holder w/ Fuse	Functional Specifications: Used to demonstrate the function of fuses		
		Performance Specifications: Should be able to demonstrate the function of fuses		
		Design Specifications:		
		1. Fuse: 0.3 amperes, maximum, slow-blow, glass-tube type, Rating should be engrave/etched on metal cap		
		2. Fuse detachable from holder, holder brass nickel plated, holder mounted on black plastic base w/ dimensions: 10-18 mm x 58-65 mm x 93-95 mm, thickness of material: 1.8-3 mm		
		3. Binding post terminals mounted on base, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation		
		4. Connecting wires properly soldered to eyelet of binding posts		
		5. Each set comes with at least 50 spare fuses		
		6. Brand name permanently marked on item		
21	Galvanometer	Functional Specifications: Used to measure small electrical current		
		Performance Specifications: Should be able to measure small electrical current		
		Design Specifications:		
		1. Analog, general purpose galvanometer;		
		2. -500 to +500 μ A full scale/10 μ A read, full scale accuracy of \pm 2.5%;		
		3. Dial plate dimensions: 93-95 mm width x 83-85 mm length, ;		
		4. Overall encasement dimensions : 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color;		
		5. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal);		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		6. External zero-adjust calibration;		
		7. With English User's Manual that includes operation guide; and		
		8. With molded styropor as part of its packaging		
		9. Brand name permanently marked on item		
22	Helical Spring	Functional Specifications: Used to demonstrate transverse waves		
		Performance Specifications: Should be able to demonstrate transverse waves		
		Design Specifications:		
		1. Wire material: Galvanized Spring Steel Wire;		
		2. Unstretched Length range: 1.6 meter to 1.9 meter;		
		3. Can be stretched to 3 times its length without deformation;		
		4. Coil Outside Diameter: 19 mm to 22mm;		
		5. Wire Diameter: 1.2 mm to 1.4 mm;		
		6. Number of turns per centimeter: 7 to 8 turns;		
		7. With circular hooks (on both ends), hook diameter is 18-20 mm		
23	Iron Core Rod (non-corrugated)	Functional Specifications: Used to perform activities on electromagnet		
		Performance Specifications: Should be able to perform activities on electromagnet		
		Design Specifications:		
		1. Iron rod diameter: 10.5-12 mm, length: 98-100 mm		
24	Laser Light	Functional Specifications: Used to produce laser beam for diffraction activities		
		Performance Specifications: Should be able to produce laser beam for diffraction activities		
		Design Specifications:		
		1. Pen type laser, red output		
		2. Powered by, 1.5 volts size AA or AAA dry cells		
		3. With ON-OFF switch		
		4. Body dimensions: 12-14 mm diameter x 135-155 mm length		
		5. Laser spot can be projected to a distance of at least 5 meters		
		6. Brand permanently marked on the item		
25	Long Nose Pliers, 6-inch, 1 pair/set	Functional Specifications: Used to bend tiny solid wire connectors		
		Performance Specifications: Should be able to bend tiny solid wire connectors		
		Design Specifications: Long Nose Pliers with side cutter, 6 inches long, chrome vanadium material, 1 pair/set		
		Brand name permanently marked on the item		
26	Magnet Wire	Functional Specifications: Used to perform activities on electromagnet		
		Performance Specifications: Should be able to perform activities on electromagnet		
		Design Specifications: 1 spool magnet wire (insulation coated) #20, 100 g. spool, brand name permanently marked on spool		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
27	Manometer, Open U-tube with Nakamura-type Water Pressure Apparatus	Functional Specifications: Used to measure pressure difference of fluids		
		Performance Specifications: Should be able to measure pressure difference of fluids		
		Design Specifications:		
		1. Open U-tube glass manometer tube with a 49.8-50 cm arm with tube diameter of 7.5-8mm with funnel top on one arm and a 2.2-2.5 cm rifted tip on another arm for easy connection with silicone-rubber tubing that fits to the rifted tip		
		2. A millimeter scale is fitted between the arms of the tube		
		3. U-tube is mounted on a wooden board, fixed on a wooden stand for vertical U-tube is mounted on a wooden board, fixed on a wooden stand for vertical mounting		
		4. Includes SIMPLE WATER PRESSURE APPARATUS (Nakamura type) -its body can be made to rotate around a rigid tube. The rigid tube is L-bent to be inserted into the pressure apparatus, so that the pressure apparatus can be rotated -with 10 pcs spare diaphragms per set		
		5. Includes 99-110 cm silicone-rubber tubing for interconnecting U-Tube manometer and the simple water pressure apparatus		
28	Miniature Light Bulb	Functional Specifications: Used to demonstrate the conversion of electrical energy to light		
		Performance Specifications: Should be able to demonstrate the conversion of electrical energy to light		
		Design Specifications:		
		1. Miniature, incandescent, screw type base		
		2. Bulb rating: 2.2 V to 2.5 V, 0.3 A, handling current; engraved on base of bulb		
		3. Operational Specs:		
		a) should fit with bulb socket in bulb holder assembly		
		b) should light with one fresh dry cell connected (1.5 volts)		
29	Miniature Light Bulb Holder	Functional Specifications: Used to securely mount light bulb in place		
		Performance Specifications: Should be able to securely mount light bulb in place		
		Design Specifications:		
		1. Socket to match the miniature incandescent light bulb, socket in plastic housing;		
		2. Socket housing is mounted on black, plastic base: Base dimensions : 10-20 mm x 58-65 mm x 93-95 mm, Material thickness: 1.8-2.5 mm		
		3. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation;		
		4. Connecting wires properly soldered to eyelet of binding posts.		
		5. Brand name permanently marked on the item		
30	Mirror Set, acrylic	Functional Specifications: Used to demonstrate the formation of image by reflection of light		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Should be able to demonstrate the formation of image by reflection of light		
		Design Specifications:		
		1. Set of 3 spherical mirrors, acrylic, secured in compartmentalized storage box with the following types and diameters:		
		a) 1-plane mirror, 48 to 52 mm diameter		
		b) 1-concave mirror, 48 to 52 mm diameter		
		c) 1-convex mirror, 48 to 52 mm diameter		
		2. All mirrors free from sharp edges;		
		3. Should be clear and no sign of cloudiness		
31	Motor-Generator Model Experiment Set	Functional Specifications: Used to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function		
		Performance Specifications: Should be able to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function		
		Design Specifications:		
		1. DC motor mode, runs on 6 volts -12 volt DC		
		2. Can function as generator when the armature is rotated; AC-DC generator output is determined by commutator configuration;		
		3. Selectable split-ring and slip-ring commutator that enables AC-DC output w/o changing the direction of rotation of the rotor;		
		4. Binding posts, for external connections, labeled with "motor input: 6 V-12 VDC" and "generator output"		
		5. Rotor is free to rotate unimpeded inside the stator without any parts of the rotor and stator in contact		
		6. Stator is activated by a permanent magnet. Stator assembly should have one color except blue and red; Example all yellow, all white or all black stator assembly.		
		7. Includes spare: 4 pcs belt, 1 set magnet;		
		8. Armature diameter: 66-68 mm , Armature shaft diameter: Ø 7.5-8 mm , w/ rigid mounting;		
		9. Drive pulley, plastic, diameter: 166-170 mm , driven pulley diameter: 24-26 mm , steel nickel plated; 10. Base wooden board dimensions: 195-200 mm x 295-300 mm x 18-20 mm		
		11. Brand name permanently marked on the item		
32	Multimeter, digital	Functional Specifications: Used to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency		
		Performance Specifications: Should be able to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency		
		Design Specifications: Measurement Coverage, or smaller values in lower range and larger values in upper range::		
		1. DC Voltage: 60mV , 6V , 60V, 600V, 1000V ±0.7%+2.		
		2. AC Voltage: 600mV, 6V, 60V, 600V, 750V ±0.8%+3.		
		3. DC Current: 600µA , 6000µA, 60mA, 600mA ±1.2%+3 / 6A , 10A ±2.0%+10.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. AC Current: 600μA , 6000μA , 60mA, 600mA ±1.5%+3 / 6A, 10A ±3.0%+10.		
		5. Resistance: 600Ω , 6kΩ, 60kΩ, 600kΩ , 6MΩ , 60MΩ ±1.2%+5.		
		6. Capacitance: 10nF, 100nF , 1000nF, 10μF, 100μF, 1000μF , 10mF, 100mF±3.0%+3.		
		7. Frequency : 10Hz , 100Hz, 1000Hz, 10kHz, 100kHz, 1000kHz, 10MHz ±1.0%+5.		
		8. Duty Cycle :0.1%-99.99% ±3.0%+2. 9. Temperature: -20~1000 Centigrade degree / -4~1832 F 10. Display: 6000 counts		
		11. Auto range		
		12. USB Interface function. The measured data stored in the instrument can be uploaded to computer for display, record and analysis		
		13. Comes with: 1*Pair Test Leads, 1*English Operating Manual. 1*Temperature Probe, 1*USB Data Cable		
		14. Brand permanently marked on the item		
33	Optical Bench Set	Functional Specifications: Used for mounting lenses, mirrors, screen, light source and other optics components		
		Performance Specifications: Should be able to mount lenses, mirrors, screen, light source and other optics components in place		
		Design Specifications:		
		1. This Complete Set includes:		
		a) 1-meterstick, with centimeter and millimeter graduations		
		b) 1-lens support for the 50 mm diameter lenses and 50 mm diameter mirrors; should be stable when mounted on meterstick, smooth sliding		
		c) 1-lens support for 75 mm lens, should be stable when mounted on meterstick, smooth sliding		
		d) 1- screen support, should be stable when mounted on meterstick, smooth sliding		
		e) 5-white board screens: 9.5-11 cm x 11.5-13.5 cm each		
		f) 2-metal supports for meter stick, should be stable, meterstick should not tip off 1-candle holder, should be stable when mounted on meterstick, smooth sliding		
		g) 1-paraffin candle		
		2. Stand supports for meter stick, holders for lenses, mirrors, screens, and candle should be placed inside one compartmentalized casing;		
		3. With English User's Manual that includes operation guide.		
		4. Brand permanently marked on packaging box		
34	Pair of Bar Magnets	Functional Specifications: Used to demonstrate that some things can make objects move and describe forces exerted by magnets		
		Performance Specifications: Should be able to demonstrate that some things can make objects move and describe forces exerted by magnets		
		Design Specifications: Pair of Bar Magnets:		
		1. Dimensions of each: 148-150 mm x 10-12 mm x 7-8 mm		
		2. Magnet strength: can suspend loads at least 2 times its weight when suspended end-to-end at north-south pole of the magnet,		
		3. Color Code: north pole of the magnet should be colored red and the south pole colored blue		
35	Prism Set	Functional Specifications: Used to demonstrate characteristics of refraction of light		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		Performance Specifications: Should be able to demonstrate characteristics of refraction of light		
		Design Specifications:		
		1. Set is composed of:a) 1-Rectangular block, solid acrylic, clear on one side and frosted on other side with the following dimensions:		
		length = 68-70 mm		
		width = 48-50 mm		
		thickness = 18-20 mm		
		b) 1-Right angle prism, solid acrylic, clear on one side and frosted on other side with the following dimensions:		
		thickness: 8-10 mm ,		
		base = 38-40 mm		
		height = 63-65 mm		
		c) 1-Semi-circular block, solid acrylic, clear on one side and frosted on other side with the following dimensions:		
		diameter=98-100 mm,		
		thickness 8-10 mm		
		2. Secured in reusable plastic storage casing;		
		3. Brand name permanently marked on the reusable storage casing.		
36	Resistance Board	Functional Specifications: Used to investigate factors affecting resistance of a conductor		
		Performance Specifications: Should be able to investigate factors affecting resistance of a conductor		
		Design Specifications:		
		1. Board: dimensions-height: 28 mm-30 mm , width: 118 mm-120 mm length: 645 mm-650 mm, material plastic, channel type, thickness of material: 2.9 mm-3.2 mm free of warpage and other imperfection like flushes etc.		
		2. Board is mounted with the following wires:		
		a) 2 - Nichrome wires of 2 different diameters: 0.23-0.25 mm & 0.48-0.5 mm; length: 598-600 mm		
		b) 1 - Stainless steel wire diameter: 0.48-0.5 mm, length: 598-600 mm		
		c) 1 - Copper wire diameter: 0.48-0.5 mm, length : 598-600 mm		
		3. Board should be marked by decimeter graduations that only span along entire wires' length		
		4. All wires should be rigidly fasten to stainless steel terminal posts		
		5. Brand name permanently marked on the item		
37	Ring and Ball Apparatus	Functional Specifications: Used to demonstrate thermal expansion (and contraction) of a metal		
		Performance Specifications: Should be able to demonstrate thermal expansion (and contraction) of a metal		
		Design Specifications:		
		1. The ring and ball set demonstrates thermal expansion.		
		2. Comprising of a captive brass ball secured to a mounted brass ring by a chain.		
		3. Diameter of Ball : 24.99-25.01mm, smooth surface		
		4. Inside Diameter of Ring : 25.03-25.06 mm, smooth surface		
		5. Outside Diameter of Ring: of 36-38 mm		
		6. Thickness of Ring: 4-6 mm		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		7. Diameter of Brass Stem: 4-5mm		
		8. Handle of brass ring made of wood.		
		9. Chain is made of stainless steel with a 3-turn stainless wire ring to keep the ball in the chain during heating.		
38	Ripple Tank Set	Functional Specifications: Used to demonstrate properties of transverse waves		
		Performance Specifications: Should be able demonstrate properties of transverse waves		
		Design Specifications:		
		1. Tank: 54.5-55 cm x 54.5-55 cm , with foam beaches perimeter to damp reflections, with 4 detachable legs with leveling screws, height of legs: 54.5-50 cm,		
		2. Glass bottom: 39.5-55 cm x 39.5-55 cm		
		3. Should include the following accessories:		
		a) 1-ripler bar with electronic frequency controller (digital)		
		b) 1-hand rippler bar		
		c) 2-spherical dippers, removable		
		d) 4-parafin blocks		
		e) 1-glass plate, 21.5-22 cm x 29.5-30 cm		
		f) 1-parabolic reflector 1-plastic viewing screen, white, 61.5-62 cm x 61.5-62 cm		
		4. Light Source:		
		a) LED light source 12 volts, 5 watts		
		b) with electronic controlled strobe to synchronize with frequency controller		
		c) detachable and adjustable mounting unto the tank		
		d) black shielded with ventilation		
		5. With frequency display unit that indicates synchronizing frequency between the controller and the strobe		
		6. With English User's Manual that includes Assembly and Operation Guide		
		7. Branded and permanently marked on the item		
		8. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).		
39	Slinky Coil, metal	Functional Specifications: Used to demonstrate longitudinal waves		
		Performance Specifications: Should be able to demonstrate longitudinal waves		
		Design Specifications:		
		1. 2.875-3 inches diameter x 3.875-4 inches long		
		2. zinc or nickel plated		
40	Sound Resonance Set: Loud Speaker	Functional Specifications: Used to provide continuous sound tone of certain frequency		
		Performance Specifications: Should be able to provide continuous sound tone of certain frequency		
		Design Specifications:		
		1. For connection to the sound signal generator, 1.875-2 inches cone diameter		
		2. 1 watt, all frequency, 4 Ohms to 8 Ohms impedance		
		3. No enclosure, mounted on an open board with stand to match height of resonance tube Height of loudspeaker with stand: center of loudspeaker 50-52 mm height from table surface to match with height of resonance tube (please see resonance tube specifications)		
		4. Binding post terminal connectors conveniently located, should not block opening of resonance tube during activity, color coded encapsulation red for positive, black for negative		
		5. Brand name permanently marked on the item		
41	Sound Resonance Set: Resonance Tube	Functional Specifications: Used to vary the length of air column to produce resonance of sound coming out from the loudspeaker		
		Performance Specifications: Should be able to vary the length of air column to produce resonance of sound coming out from the loudspeaker		
		Design Specifications:		
		1. With plastic stopper fixed on one end of inner tube		
		2. Outer tube: OD: 61-70 mm diameter, 1025-1035 mm long: with detachable rubber plug on free end for safe transport of inner-outer tube assembly		
		3. Inner tube: OD: 48-50 mm, 1095-1100 mm long, With permanent graduation with mm scale at 1 mm division to indicate length of air column as the inner tube is pushed or pulled along the outer tube; print should resist rubbing, no sign of fade after 100 slides; inner tube with good quality air sealing material (felt cloth)		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		4. With rigid and stable stand to make effective height of outer tube align with loudspeaker cone (please see loudspeaker specifications)		
		5. Height including stand: center of outer tube elevated by 50-52 mm from the surface)		
		6. With English User's Manual that includes Operation Guide		
		7. Brand name permanently marked on the item		
42	Sound Resonance Set: Tone Generator	Functional Specifications: Used to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone		
		Performance Specifications: Should be able to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone		
		Design Specifications:		
		1. Should be able to generate 20 Hz-20 kHz frequency sine waves; with digital display readout of frequency setting		
		2. Frequency setting on unit should match to measured sound output coming out from connected loudspeaker within 3%. Example if the sound generator is set to produce sound of 256 Hz the measured sound frequency coming out from loudspeaker should be in the range 248-264 Hz.		
		3. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics)		
		4. Maximum sound output from connected loudspeaker: 55 dB to 65 dB at 1kHz measured at 8-12 cm distance between loudspeaker and sound measuring instrument		
		5. With terminals for external connection to loudspeaker and to oscilloscope		
		6. Power supply: 4.5 volts -12 volts DC internal by way of dry cells or external by way of appropriate adapter		
		7. With English User's Manual that includes Operation Guide		
		8. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:		
		I. Training Video Contents:		
		a. Name of the equipment		
		b. Parts of the equipment		
		c. Instruction on how to use the equipment		
		d. Sample Experiment/Activity using the equipment		
		e. Maintenance of the equipment		
		f. Troubleshooting		
		g. Storage and safekeeping (include cleaning) of the equipment		
		II. Training Video details:		
		a. Shall be in MP4 format.		
		b. Shall be saved in a USB 3.0 Flash Drive.		
		c. Shall have a High-Definition resolution of at least 1080p.		
		d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.		
		e. Shall comply an aspect ratio of 4:3.		
		f. Shall have a cover video pane containing the equipment name and a video pane for each video content.		
		g. The video, voiceover (audio), and subtitle shall be in sync.		
		h. The training video shall cover all the above requirement (video contents).		
		8. Brand name permanently marked on the item.		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
43	Strobe Light	Functional Specifications: Used to provide flashes of light so that fast rotating objects appear to freeze		
		Performance Specifications: Should be able to provide flashes of light so that fast rotating objects appear to freeze		
		Design Specifications:		
		1. Light source: white LED		
		2. Variable frequency range: 2.5 Hz-250 Hz, variable		
		3. Power source: Rechargeable alkaline/li-ion/li-po batteries with corresponding charger (both included in package) AND/OR unit operates directly from DC adapter, DC adapter should be included		
		4. With English User's Manual that includes operation guide		
		5. Brand name permanently marked on the item		
44	Switch, Knife type, Single Pole Single Throw	Functional Specifications: Used to open and close an electrical circuit		
		Performance Specifications: Should be able to open and close an electrical circuit		
		Design Specifications:		
		1. Single pole Single Throw Knife type switch Knife dimensions : 0.7-0.8 mm x 7-8 mm x 53-55 mm, nickel plated brass Plastic handle dimensions : 8-10 mm x 8-10 mm x 20-25 mm		
		2. Contact plates for knife dimensions : 7-8 mm x 18-20 mm, nickel plated brass, thickness of material 0.48-0.5 mm		
		3. Knife switch-contact plates assembly mounted on black plastic base: 10-20 mm x 58-65 mm x 93-95 mm, thickness of base: 1.8-3 mm		
		4. Binding post terminals, threaded, can accommodate standard 4 mm banana plug, brass material, with yellow plastic encapsulation		
		5. Internal connectors properly soldered to eyelet of binding posts;		
		6. Switch fixations should survive 100 continuous on-off operation cycles, without signs of wear and tear		
		7. Brand name permanently marked on the item		
45	Ticker Timer Set	Functional Specifications: Used to measure and record short time intervals by marking "ticks" on paper tape		
		Performance Specifications: Should be able to measure and record short time intervals by marking "ticks" on paper tape		
		Design Specifications:		
		1. Operates on 6 to 12V a.c. power supply. Has a plastic base and screw type binding posts;		
		2. Supplied with: a) 38-40 mm diameter carbon paper disc, 100 pcs; b) 13-15 mm wide ticker tape, 3 rolls; c) C-clamp		
		3. Brand name permanently marked on the item		
46	Toy Car, non-friction, non-battery	Functional Specifications: Used to demonstrate that some things like people can make objects move		
		Performance Specifications: Should be able to demonstrate that some things like people can make objects move		
		Design Specifications:		

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
		1. Dimensions: 49.5-60 cm x 29.5-30 cm x 24.5-34 cm (L x W xH)		
		2. Material: plastic, any color or color combination		
		3. 4-wheels free to turn		
		4. not driven by any power source or winding mechanism except by pushing or pulling by people		
47	Tuning Fork Set	Functional Specifications: Used to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale		
		Performance Specifications: Should be able to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale		
		Design Specifications:		
		1. 8 piece tuning forks with standard Scale Letter and Frequencies: C=256 Hz, D=288 Hz, E=320 Hz, F=341 Hz, G=384 Hz, A=426 Hz, B=480 Hz, C=512 Hz		
		2. Aluminum alloy, non-magnetic, handle: 4-4.5 cm length		
		3. Frequency and scale letter stamped on each fork		
		4. With rubber mallet		
		5. Measured sound output frequency should be within 1% of frequency rating stamped on each tuning fork		
		6. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics)		
		7. Brand permanently marked on the storage box		
48	Vacuum Tube and Manual Vacuum Pump	Functional Specifications: Used to demonstrate the effect of air resistance on the motion of freely falling objects		
		Performance Specifications: Should be able to demonstrate the effect of air resistance on the motion of freely falling objects		
		Design Specifications:		
		A. Vacuum tube:		
		1. 905-910 mm long x 53-60 mm diameter, transparent acrylic		
		2. With stopcock mounted in a rubber stopper on one end, and solid rubber stopper on the other end		
		3. Supplied with 12-13 inches long vinyl tubing for connection to vacuum pump		
		4. Includes metal disc and a feather as specimens		
		B. Vacuum pump:		
		1. Hand operated		
		2. With pressure gauge		
		3. Pump is sealed, self lubricating, with removable cap, and elastic valve		
		4. Fixed on outer port to provide quick vacuum release		
		5. Nozzle fits standard 1/4 inch diameter tubing		
		6. Brand permanently marked on the item		

Note:

Functional Specifications:

Describe here the functionalities in which the goods are expected to be utilized.

Detailed Specification

Item	Description	Technical Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
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Performance Specifications:

Describe here the performance characteristics desired for the item, particularly indicating the manner or method by which the goods or services are expected to carry out the functions expected of them.

Design Specifications:

Describe here the precise measurements, tolerances, materials, in-process and finished product, tests, quality control and inspection measurements and other relevant information regarding the item desired to be procured.

Environmental Interface:

As may be applicable, describe here the environment in which the functions required of the goods and services sought to be procured are performed at the desired level.

Comparative Description (by standard or benchmarks):

As may be applicable, identify the item to be procured by another product, brand or exclusive standard which may already be known and is of desirable features and characteristics with the mandatory use of the "or its equivalent" phrase to allow competition.