

Schedule of supply

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1. List of Goods and Related Services

Package Name: Supply of Applied Science Lab Equipments etc. for Government Polytechnic (Women), Rehan Distt. Kangra HP to enhance technical and vocational skills among the youth of Himachal Pradesh. HPSDP/DOTE/WP/08; RFQ No. GP005/2020

Lot No: 1									
Lot Name: Applied Science Lab Equipment's etc.								Delivery Time (in days): not more than 180	
Item No	Name of Goods or Related Services	Description	Unit of Measure -ment	Quantity	Unit Price INR	Total price per item INR	Sales and other taxes per item	Total Price (Including GST)	Remarks (Please mention Page Number of detailed information brochure having make and model no.)
1	2	3	4	5	6	7= 5*6	8= 7* @GST%	9=7+8	
1.	Vernier Calliper	Range (0-15cm) least count =0.01cm	No.	15					
2.	Solid Sphere	radius= 2-3cm	No.	15					
3.	Solid Cylinder	radius= 2-3 cm, length = 6-8 cm	No.	15					
4.	Screw Gauge	Range (0-25mm) least count =0.01mm	No.	15					
5.	Metallic wire	radius= 4-5mm, length = 8-10cm	No.	15					
6.	Spherometer	(10-0-10mm) having least count =0.01mm	No.	15					
7.	Glass strip	(thickness=2-5mm)	Pkt.	5					
8.	Glass slab	(thickness=25-30mm)	No.	15					
9.	Gravesand apparatus to verify parallelogram law of forces	Gravesand apparatus, slotted weight (5*50gms), two frictionless pulley, three hanger, drawing pins, spring balance, thread, half meter rod, mirror strip	No.	7					

10.	Inclined plane to verify the conservation of energy	Inclined plane with its lower part curved, metallic ball (radius=1-2cm), meter rod, digital balance,	No.	7					
11.	Fly Wheel to study moment of inertia	Flywheel, slotted weight (5*50gms), a strong and thin string, stop watch,	No.	7					
12.	Force constant of spring by Hooke's Law	Spring, a rigid support, slotted weights (5*20 gms), a vertical wooden scale (0-25cm), a fine pointer, a hook.	No.	7					
13.	Ohm's Law	Voltmeter (0-10V), Ammeter (0-3A), one way key, Rheostat (50 ohm, 5A) fixed resistance (10 ohm), DC regulated power supply (0-10V)	No.	7					
14.	Kirchhoff's Law	Voltmeter (0-10V), Ammeter 3nos. (0-3A), one way key, Rheostat (50 ohm, 5A) fixed resistance (5 ohm, 10 ohm, 15 ohm), DC regulated power supply (0-10V)	No.	7					
15.	Laws of Resistance in Series & Parallel combination	The trainer board should consist of 0 to 5Vdc at 3A continuously variable regulated and short circuit protected battery eliminator. DC Voltmeter 65mm round dial mounted on Bakelite stand to read 0-5V, DC Ammeter 65mm round dial, mounted on Bakelite stand to read 0-3A, Set of Resistance wire for series and parallel connection, mounted on a panel board with terminals.	No.	7					
16.	Conversion of Galvanometer into a Ammeter	The trainer board should consist of 5V DC at 50 mA Power Supply, Galvanometer	No.	7					

	& Voltmeter	65mm rectangular dial having 30-0-30 scales, DC Milliammeter 65mm rectangular dial to read 0-50mA, Necessary Shunt & Series Resistance, Potentiometer and adequate no. of electronic components should provide with facilities of Main ON/OFF Switch fuse and jewel light with operating manual.							
17.	Study characteristics of pn junction diode.	The trainer board should consist of a junction diode (Si & Ge), milliammeter, microammeter, voltmeter, a variable battery of 5V for forward biasing and 150V for reverse biasing, one way key,	No.	7					
18.	Capacitance of parallel plate capacitor.	The trainer board should consist of a high resistance voltmeter and having range 300V, a capacitor C=64microF, 2 tapping keys, D.C regulated power supply more then 250 V, stop watch.	No.	7					
19.	Focal length of convex lens & concave mirror	Optical bench, Mirror holder, three uprights, two needles, Convex lens, Concave mirror, meter scale & knitting needle.	No.	7					
20.	Sonometer to find velocity of sound	Length = 13 - 18 Inch, rectangular shape, frame material aluminium, thickness 20-35mm, tuning fork of set 8, rubber pad, sonometer wire=100gms, meter scale, hanger	No.	7					
21.	Resistance box	(0-10000 ohm)	No.	10					
22.	Ammeter	Set of (0-1A), (0-500 mA)	set	5					

23.	Connecting wire	coated copper	rolls	5					
24.	Galvanometer	(30-0-30)	No.	10					
25.	Voltmeter	(0-10V)	No.	10					
26.	Flax Boards of do's and don'ts	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	No.	2					
27.	Flax Boards of experiments	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	No.	2					
Total (Lot 1)									

Lot No: 2									
Lot Name: Applied Chemistry: Glass Apparatus & Materials								Delivery Time (in days): not more than 180	
Item No	Name of Goods or Related Services	Description		Unit of Measurement	Quantity	Unit Price INR	Total price per item INR	Sales and other taxes per item	Remarks (Please mention Page Number of detailed information brochure having make and model no.)
1	2	3		4	5	6	7= 5*6	8= 7*@GST%	9=7+8
1	Beaker, Tall Form, With Spout (Borosilicate's)	Capacity in ml	Approx. O.D X Height in mm	No.					
	i)	50	38 x 70	No.	20				
	ii)	100	48 x 80	No.	20				
	iii)	150	54 X 95	No.	20				
	iv)	250	60 x 120	No.	20				
	v)	500	77 x 137	No.	10				
	vi)	1000	95 x 180	No.	10				
2	Bottles	Interchangeable	Approx.	No.					

	Reagent(Borosilicate's), Plain Narrow Mouth, Graduated	Flat Head Stopper. Capacity in ml	O.DX Height in mm							
	i)	250	70 x 120	No.	15					
	ii)	500	86 x 180	No.	15					
	iii)	1000	100 x 230	No.	7					
	iv)	2000	136 x 255	No.	5					
3	Bottles, Wash, LDPE Plastic, Squeeze type, Screw Cap,	Capacity in ml	Approx. O.DX Height in mm	No.						
	i)	500	75X 167	No.	25					
4(a)	(Borosilicate's) Burettes Boroflo, Fitted With Boroflo GP (General Purpose),	Capacity in mL	Graduation Interval (ml)	No.						
		50	0.1	No.	30					
4(b)	Burettes, <u>Straight Bore Stopcock</u>	50	0.1	No.	30					
5	China dish	Material : china clay	Sizes : 75mm	No.	20					
		Color : White	:100 mm	No.	20					
6(a)	Cylinders, Graduated, Single Metric Scale(Borosilicate's)	Capacity in mL	Graduation Interval (ml)	No.						
	i)	5	0.1	No.	10					
	ii)	10	0.2	No.	20					

	iii)	25	0.5	No.	15					
	iv)	50	0.1	No.	10					
	v)	100	0.1	No.	10					
6(b)	Cylinders, Graduated, Single Metric Scale, with Pour Out, with hexagonal Base(borosilicate's)	Capacity in mL	Graduation Interval (ml)							
	i)	250	2	No.	8					
	ii)	500	5	No.	8					
	iii)	1000	10	No.	5					
7	Desiccators(borosilicate's)	Approx. ID Ground Flange mm = 100		No.	15					
8	Dropper	Borosilicate Glass , capacity 10 ml with rubber holder		No.	20					
9(a)	Flasks, Erlenmeyer, Conical, Narrow Mouth(Neck O.D. Mm =22)	capacity ml	Approx. O.D. x Height mm							
	i)	150	64 x 105	No.	25					
9(b)	Flasks, Erlenmeyer, Conical, Narrow Mouth(Neck O.D. Mm =34)	250	85 x 145	No.	25					
10	Flasks, Iodine Determination	capacity ml	Interchangeable Joint size							
	i)	100	24 / 29	No.	25					

	ii)	250	24 / 29	No.	25					
11	Flasks, Volumetric(borosilicate's)	Capacity ml	Tolerance \pm ml							
	i)	50	0.06	No.	10					
	ii)	100	0.1	No.	15					
	iii)	250	0.15	No.	15					
	iv)	500	0.25	No.	20					
	v)	1000	0.4	No.	20					
	vi)	2000	0.6	No.	10					
12	Filter paper (ordinary)	Grade 602 h qualitative filter paper has the pore size of 2 μ m. Size: 12.5cm (set of 100 RIMS)		set	30					
13	Whatman qualitative ashless filter paper	Liquid Filtration Material: Fibre Round Shape:		No.	20					
14	Funnels, Plain, 60° Angle, Short Stem(borosilicate's)	1)Made 3.3 borosilicate glass, USP Type I	3) Diameter mm = 75	No.	30					
		2)Designed with a 60° bowl angle to ensure precise fitting of the filter paper	4) Diameter mm = 100	No.	30					
15	Pipettes, Transfer, Volumetric(borosilicate's)	Capacity ml	Tolerance \pm ml							
	i)	10	0.02	No.	30					
	ii)	20	0.03	No.	30					
16	Pestle and	Material : Ceramic and		No.	3					

	Mortar	Wooden Handle Pestle Mortar Diameter =4.5 Inch							
17	Stirrer	Made of polished 3.3 borosilicate glass	Approx. O.D. x Length mm = 9 x 255	No.	50				
18	Watch Glasses, Borosil S - Line	Made of soda glass							
		Capacity ml							
	i)	100		No.	30				
	ii)	150		No.	30				
19	TONGS FOR BEAKERS	Made of stainless steel							
		Provided with silicon sleeves or in fibre glass yarn to resist direct flame	Size Inches =10	No.	25				
20	TONGS FOR CRUCIBLE	Made of Stainless Steel							
		Crucible tong with bow stainless steel	Size Inches =12	No	25				
21	SPATULAS	Made of stainless steel grade 202							
		One end flat one spooned	Size Inches =6	No.	20				
22	Silica Crucible with lid	Material : Silica ,Crucible is glazed inside and outside.	50ml capacity	No.	30				
		Highly resistant to alkalis and hot temperatures upto 1000 °C	Outside diameter 55mm, 42mm height						

23	Burette Stand	Material : Stainless Steel	Length Width 16 Inch 60 cm	No.	35					
24	Test Tubes	Test tubes 4x1/2" (6 pcs) and Borosilicate Glass with Rim		No.	100					
25	Test tube brush	Marking Colour white	12mm Diameter	No.	30					
		Material Type nylon	300mm							
26	Tripod Stand	Set of Triangular top, made of Mild Steel wire. Lower end of legs covered with plastic cap to avoid scratching the work surface	Size : 6" x 4", 8" x 4", 8" x 5"	set	20					
Total (Lot 2)										

Lot No: 3										
Lot Name: Chemicals for Applied Chemistry Lab.								Delivery Time (in days): not more than 180		
Item No	Name of Goods/items or Related Services	Description		Unit of Measure -ment	Quantit y	Unit Price INR	Total price per item INR	Sales and other taxes per item	Total Price (Includi ng GST)	Remarks (Please mention Page Number of detailed informatio n brochure having make and model no.)
1	2	3		4	5	6	7= 5*6	8= 7*@GST%	9=7+8	
1.	Ammonium Chloride(LR) (pack of 500 g)	NH ₄ Cl. M.W. 53.49 White crystalline solid ,	soluble in water(37%) assay ≥99.5% & vapour density 1.9 (vs air)	Pack	5					
2.	Ammonium Sulphate (pack of 500 g)	(NH ₄) ₂ SO ₄ or H ₈ N ₂ O ₄ S Molecular Weight: 132.14 g/mol	A high-melting (decomposes above 280°C) COLOR: white solid which is very soluble in water Min.assay 98.5%	Pack	2					
3.	Ammonia Buffer (solution)	for complexometry (ammonium	pH = 10-11	Bottle	8					

	(bottle of 500ml)	chloride/ammonia)								
4.	Acetone (bottle of 2.5 Ltr)	i) Chemical formula CH_3COCH_3 , ii) M.W. 58.08 g/mol ii) Clear Liquid iv) Purity w% 99.5 min Water Content w% 0.5 max	Freezing/Melting Point -94 deg. C ; Boiling Points 56 deg. C ; pH 7	Bottle	4					
5.	Glacial Acetic Acid CH_3COOH (bottle of 500 ml)	Min. assay : 99.85 % min. by wt. Water : 00.15 % max. Colour: 10 APHA max	.	Bottle	4					
6.	Calcium Chloride(fused) (pack of 500 g)	CaCl_2 , M.W. 110.99 crystalline, lumpy, or flaky, Min. assay 95%	soluble in water (Powder not preferred)	Pack	3					
7.	Cupric Sulphate(pentahydrate) (pack of 500 g)	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ M.W. 249.68 Blue crystalline solid	ASSAY (DRIED BASIS) 98.5 % - 100.5%	Pack	6					
8.	Calcium Carbonate (pack of 500 g)	CaCO_3 , M.W. 100 g/mol colour: white, odourless powder	Whiteness : 98% min Content CaCO_3 : 98% min	Pack	3					
9.	Clean sol (lab wash) (bottle of 5 Ltr)	1) Phosphate FREE alkaline detergent made up of high-quality anionic & non-ionic surfactants with total solid content between 17% -20% 2) Bio-degradable.	3) Non hazardous. 4) Free from scents/toxic ingredients.	Bottle	3					
10.	Ethyl Alcohol(absolute) (bottle of 500 ml)	Molecular formula: $\text{C}_2\text{H}_6\text{O}$ Molar Mass: 46.07 g/mol	colorless liquid that has a slight odour.	Bottle	10					
11.	EDTA (pack of 500 g)	Chemical Name: EDTA Disodium Salt	pH OF A 1 IN 100	Pack	4					

		(Ethylene Diamine Tetra Acetic Acid) Min. Max. ASSAY :99.0. 101.0 %.	SOLUTION. 4.3. 4.7. Color: White Powder Active Ingredient:Na ₂ EDTA							
12.	Eriochrome Black - T(indicator) (pack of 500 g)	Appearance (Colour) : Brown Appearance (Form) :Powder		Pack	2					
13.	Ferrous Ammonium Sulphate(Mohrs salt) (pack of 500 g)	Chemical formula: FeSO ₄ .(NH ₄) ₂ SO ₄ .6H ₂ O Composition :- Iron :- 14% Nitrogen :- 7% Sulphur :- 8%	crystalline water soluble solid .	Pack	5					
14.	Ferrous Sulphate (pack of 500 g)	FERROUS SULPHATE HEPTAHYDRATE – AR/GR Grade Colour: Green Crystal or Crystalline Powder	Odorless, Efflorescent, Oxidized in moist Air. Insoluble Matter : 0.01% Max. Chloride : 0.001% Max. Potassium : 0.002% Max.	pack	5					
15.	Hydrochloric Acid (bottle of 2.5 Ltr)	MELTING POINT:-25 °C BOILING POINT:85°C DENSITY:1.19 kg/l	SOLUBILITY : Miscible with water PHYSICAL DESCRIPTION: liquid	Bottle	2					
16.	Litmus Paper(Blue and Red) (pack of 100 strips)	Litmus pH Test Strips, Universal Application (pH 1-14),		Pack	4					
17.	Methyl Orange (pack of 25g)	Chemical Formula:C ₁₄ H ₁₄ N ₃ NaO ₃ Molecular Weight:327.34	Transition Range:pH 3.0-4.4 Pink-Orange	Pack	4					

			yellow							
18.	Magnesium Chloride (pack of 500 g)	Molecular formula: $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ Molar Mass: 203.31g/mol Density: 1.569g/cm ³	Appearance: White crystals, Granular or Flakes Solubility in Water: 157 g/100 mL (20 °C)	Pack	2					
19.	Oxalic Acid Dehydrate (pack of 500 g)	Molecular Formula $(\text{COOH})_2 \cdot 2\text{H}_2\text{O}$ Molecular Weight 126.07	Description: Snow white Crystals Purity: 99.6 % Min	Pack	6					
20.	Potassium Chloride (pack of 500 g)	98% min KCl Potassium Chloride		Pack	2					
21.	Phenolphthalein (pack of 100 g)	Molecular Formula : $\text{C}_{20}\text{H}_{14}\text{O}_4$ Molecular Weight : 318.33	White to yellowish white powder Transition range pH 8.2 - pH 9.8 almost colorless - red-violet	Pack	4					
22.	Potassium Permanganate (pack of 500 g)	ATOMIC OR MOLECULAR FORMULA KMnO_4 ATOMIC OR MOLECULAR WEIGHT 158.03	Colour: Dark purple or brownish black to almost black crystals with metallic lustre . Solubility 5% solution in water is clear. Assay	Pack	4					

			(Iodometric) 99.5 – 100.5%							
23.	Potassium Iodide (pack of 500 g)	MOLECULAR FORMULA KI ATOMIC OR MOLECULAR WEIGHT 166.00	Colour: Colourless or white crystals /crystalline powder. Solubility 20% solution in water is clear and colourless up to 48 hours. Minimum Assay (oxidimetric; after drying) 99.8%	Pack	5					
24.	Potassium Hydroxide (pack of 500 g)	ATOMIC OR MOLECULAR FORMULA KOH ATOMIC OR MOLECULAR WEIGHT 56.11	Description: White deliquescent pellets. Solubility 10% solution in water is clear, colourless. Minimum Assay (Acidimetric) 85.0%	Pack	5					
25.	Sodium Chloride (pack of 500 g)	Non-Iodized, Granular, FCC Molecular Weight 58.44	ASSAY (DRIED BASIS) 99.0 100.5 %	Pack	2					
26.	Sodium Bicarbonate (pack of 500 g)	Physical Condition: Free flowing tiny crystals. Solubility : Soluble in water,	NaHCO ₃ % 99,30 min	Pack	2					

		insoluble in ethanol								
27.	Sodium Carbonate (pack of 500 g)	Molecular Formula Na_2CO_3 Molecular Weight 105.99 white, granular, alkaline material.	Odorless 99.2 % w/w min.	Pack	2					
28.	STARCH SOLUBLE (EX POTATO) AR (pack of 500 g)	Description: A White to off white powder. . pH (at 25 0 C, 2% Solution) 5.0-7.5		Pack	2					
29.	Sodium Thiosulphate (pack of 500 g)	Appearance: White crystalline solid $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ 99% min. pH (10% solution) 6.5 to 8.0 Solubility Soluble in water		Pack	5					
30.	Sodium Hydroxide(pallets) (pack of 500 g)	Color:White	Assay : \geq 97.0%	Pack	5					
31.	Sodium Iodide (pack of 100 g)	Molecular Formula : NaI Molecular Weight : 149.89	Appearance :Colourless to White solid	Pack	4					
32.	Sulphuric Acid (bottle of 2.5 ltr)	Appearance :Clear, transparent, viscous liquid free from sediment & sludge matter	Concentratio n 98% by weight minimum	Bottle	2					
33.	Silicone Greese (pack of 50 g)	consists of a Silicone Lubricating fluid thickened with a special complex Lithium soap. Temperature (- 50 ° C to 220° C).	This grease should be available in three consistencies (light, medium and heavy).	Pack	5					
Total (Lot 3)										

Lot No: 4									
Lot Name: Equipment's for Applied Chemistry Lab.								Delivery Time (in days): not more than 180	
Item No	Name of Goods or Related Services	Description	Unit of Measurement	Quantity	Unit Price INR	Total price per item INR	Sales and other taxes per item	Total Price (Including GST)	Remarks (Please mention Page Number of detailed information brochure having make and model no.)
1	2	3	4	5	6	7= 5*6	8= 7*@GST%	9=7+8	
1.	Muffle furnace	Temp. Range 1000-1200 degree Celsius, the outer casting is made up of thick mild steel finished with epoxy based powdered coated paint, standard heating element (KANTHAL-Ä-1" wire), indicator pyrometer. chromal alumel thermocouple, 220/230 v AC fitted with energy regulators and indicating lights, 125X125X250 mm ,2 KW	No.	2					
2.	Redwood Viscometer	Heavy silver plated brass cup fitted with jet at the bottom with the brass cover having suitable slot for oil cup,2 thermometers (range 0-200 degree Celsius); standard stainless steel bath brightly polished, provided with an immersion heater. Cord,	No.	7					

		electrical fitting and drain out. Stop cock. thermometer spring slip to support thermometer, temperature regulator, energy regulator							
3.	Analytical electronic balance	Weighing range min. 0.1 g max.-500 steel/chrome plated pan, both function of batteries and main adapter, auto off function.	No.	3					
4.	Electric Hot plates(rectangular)	provided with temperature controller having temperature range up to 350 degree celcius,,220-230 v,size200 -300 Mm , heavy duty cast iron top Suitable for general use in laboratory	No.	5					
5.	Digital pH meter	p H range(0 to 14), digital display with automatic polarity and decimal point indication, operating temperature 10 -50 degree Celsius, dimensions: 76mm(H) X275mm(W)X175mm(D),weight about 2 kg	No.	10					
6.	Heating mantle	Heating mantle with aluminium plated metal body, heating element of 120 W, voltage input of 120 watts, energy regulator switch. Indicating temperature and integrated cable connecting socket.	No.	5					

		Capacity(500 ml.							
7.	Double Distillation apparatus	Borosilicate apparatus consists of two flasks of 3 to 5 ltrs with heating element embedded in spiral coil internally at bottom and trapped ground Glass joints at the top ,suitable to work on 220 v with electric board with switch,neon light indicators connecting .	No.	1					
8.	Hot Air Oven	Temperature control with dual display of set and actual temperature.Double walled inside of stainless steel and outer made of mild steel duly powder coated.Hinged insulated door with heat resistant gasket,proper insulation with mineral wool ,proper air circulation for uniform temperature.power supply 220 v ,50 Hz single phase AC.(size of inner chamber 350X350X350mm) with 2 or 3 trays.	No.	1					
9.	Water bath	rectangular with microprocessor bored PID digital controller, with dual display. 300X250X100 mm(W X H X D) with 6 holes of 75 mm dia.	No.	2					

		Double walled chamber made from stainless steel with duly finished coating paint.							
10.	Rheostat	6 inches, brass rod, metal feet, common range	No.	10					
11.	Milliammeter	A,DC milliammeter Set of (0-1A), (0-500 mA)	Set	10					
12.	Battery	6V	No.	10					
13.	Two ways plug key	6*3*3cm	No.	10					
14.	Connecting wires	Coated copper	Roll	5					
15.	Copper plates	Set of 2 consists Thick with terminal.	Set	10					
16.	Periodic Table Chart	Shows essential element information clearly and colourfully, includes element symbol, atomic number, element name, atomic mass and radioactivity, properly laminated. Qualifying Standard of size L 90 cm H 60 cm	No.	2					
17.	Flax Boards of do's and don'ts	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	No.	2					

18.	Flax Boards of experiments	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	No.	2					
Total (Lot 4)									

Lot No: 5									
Lot Name: other items & equipment's for Language Lab								Delivery Time (in days): not more than 180	
Item No	Name of Goods or Related Services	Description	Unit of Measure -ment	Quantity	Unit Price INR	Total price per item INR	Sales and other taxes per item	Total Price (Including GST)	Remarks (Please mention Page Number of detailed information brochure having make and model no.)
1	2	3	4	5	6	7= 5*6	8= 7*@GST%	9=7+8	
1.	Smart Board Interactive Whiteboard System	(i) SMART Unifi 35 Projection System • Projector Size: 37 cm x 66 cm x 122 cm (HxWxD) • Brightness : 1500 Lumen • Contrast Ratio : 1000: 1 • Resolution : 1024x768 • Lamp Life : 3000 Hours • Video Mode : 720p, 1080i, 576i, 576p, 480p, 480i • Speaker : 20 W (Mono) • Connectivity: USB (ii) SMART Board Interactive Whiteboard • Size: 139.2 cm × 105.8 cm × 13 cm (WxHxD) • Active Screen Area : 130.2 cm × 97.2 cm (WxH) • Touch Resolution: Approximately 4000 × 4000 • Digitizing Technology: Four-	No.	1					

		camera DVIT (Digital Vision Touch) technology <ul style="list-style-type: none"> • Screen Surface: The hard-coated steel surface is durable, optimized for projection, compatible with dry-erase markers and easily cleaned. • Pen Tray: Optical sensors in the pen tray detect when you lift a pen or the eraser from the tray. LEDs show the active too • Pens and Erasers: Black, blue, red and green pens and a rectangular eraser 							
2.	Wall Clock	Dimensions : 18" Height x 18" Wide, Dial size – 12" <ul style="list-style-type: none"> • Material: Plastic/Wooden • Shape : Round • Battery Type: AA; Number of Batteries: 1 • High Quality Non Ticking Sweep Movement. 	No.	1					
Total (Lot 5)									

	Total price per item (INR)	Total Price INR (Including GST)
	(7= 5*6)	(9=7+8)
Grand Total (Lot 1 + Lot 2 + Lot 3 + Lot 4 + Lot 5)		
Grand Total (Without Tax) in Words: -		
Grand Total (With Tax) in Words : -		

2. Delivery and Completion Schedule

The delivery period shall start as of date of Signing the Contract

Item No	Description of Goods or Related Services	Delivery Schedule (Duration)	Location	Required Arrival Date of Goods or Completion Date for Related Services
Package Name: - Applied Science Lab Equipment's etc. Package no.: - HPSDP-DOTE/WP/08				
Lot-1	Applied Science Lab Equipment's etc.	Within 180 Days from the Signing of the contract.	Government Polytechnic (Women), Rehan District-Kangra, Himachal Pradesh	Within 180 Days from the Signing of the contract.
Lot-2	Applied Chemistry: Glass Apparatus & Materials	Within 180 Days from the Signing of the contract.	Government Polytechnic (Women), Rehan District-Kangra, Himachal Pradesh	Within 180 Days from the Signing of the contract.
Lot-3	Chemicals for Applied Chemistry Lab.	Within 180 Days from the Signing of the contract.	Government Polytechnic (Women), Rehan District-Kangra, Himachal Pradesh	Within 180 Days from the Signing of the contract.
Lot-4	Equipment's for Applied Chemistry Lab.	Within 180 Days from the Signing of the contract.	Government Polytechnic (Women), Rehan District-Kangra, Himachal Pradesh	Within 180 Days from the Signing of the contract.
Lot-5	Other items & equipment's for Language lab.	Within 180 Days from the Signing of the contract.	Government Polytechnic(Women), Rehan District-Kangra, Himachal Pradesh	Within 180 Days from the Signing of the contract.

3. Technical Specifications

Lot no.1 Lot Name: - Applied Science Lab Equipment's etc.

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference	Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipmen t/parts
1.	Vernier Calliper	Range (0-15cm) least count =0.01cm	standard	standard	standard	Manuals to be supplied with equipment's .	• To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
2.	Solid Sphere	radius= 2-3cm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
3.	Solid Cylinder	radius= 2-3 cm, length = 6-8 cm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at	standard

							the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
4.	Screw Gauge	Range (0-25mm) least count =0.01mm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
5.	Metallic wire	radius= 4-5mm, length = 8-10cm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
6.	Spherometer	(10-0-10mm) having least count =0.01mm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan	standard

							Distt. Kangra H.P.	
7.	Glass strip	(thickness=2-5mm)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
8.	Glass slab	(thickness=25-30mm)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
9.	Gravesand apparatus to verify parallelogram law of forces	Gravesand apparatus, slotted weight (5*50gms), two frictionless pulley, three hanger, drawing pins, spring balance, thread, half meter rod, mirror strip	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

10.	Inclined plane to verify the conservation of energy	Inclined plane with its lower part curved, metallic ball (radius=1-2cm), meter rod, digital balance,	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
11.	Fly Wheel to study moment of inertia	Flywheel, slotted weight (5*50gms), a strong and thin string, stop watch,	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
12.	Force constant of spring by Hooke's Law	Spring, a rigid support, slotted weights (5*20 gms), a vertical wooden scale (0-25cm), a fine pointer, a hook.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
13.	Ohm's Law	Voltmeter (0-10V), Ammeter (0-3A), one way key, Rheostat (50 ohm, 5A) fixed resistance (10 ohm), DC regulated power supply (0-10V)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at	standard

							the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
14.	Kirchhoff's Law	Voltmeter (0-10V), Ammeter 3nos. (0-3A), one way key, Rheostat (50 ohm, 5A) fixed resistance (5 ohm, 10 ohm, 15 ohm), DC regulated power supply (0-10V)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
15.	Laws of Resistance in Series & Parallel combination	The trainer board should consist of 0 to 5Vdc at 3A continuously variable regulated and short circuit protected battery eliminator. DC Voltmeter 65mm round dial mounted on Bakelite stand to read 0-5V, DC Ammeter 65mm round dial, mounted on Bakelite stand to read 0-3A, Set of Resistance wire for series and parallel connection, mounted on a panel board with terminals.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
16.	Conversion of Galvanometer into a Ammeter & Voltmeter	The trainer board should consist of 5V DC at 50 mA Power Supply, Galvanometer 65mm rectangular dial having 30-0-30 scales, DC Milliammeter 65mm rectangular dial to read 0-50mA, Necessary Shunt & Series Resistance, Potentiometer and adequate no. of electronic components should provide with facilities of Main ON/OFF Switch fuse and jewel light with operating	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan	standard

		manual.					Distt. Kangra H.P.	
17.	Study characteristics of pn junction diode.	The trainer board should consist of a junction diode (Si & Ge), milliammeter, microammeter, voltmeter, a variable battery of 5V for forward biasing and 150V for reverse biasing, one way key,	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
18.	Capacitance of parallel plate capacitor.	The trainer board should consist of a high resistance voltmeter and having range 300V, a capacitor C=64microF, 2 tapping keys, D.C regulated power supply more than 250 V, stop watch.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
19.	Focal length of convex lens & concave mirror	Optical bench, Mirror holder, three uprights, two needles, Convex lens, Concave mirror, meter scale & knitting needle.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

20.	Sonometer to find velocity of sound	Length = 13 - 18 Inch, rectangular shape, frame material aluminium, thickness 20-35mm, tuning fork of set 8, rubber pad, sonometer wire=100gms, meter scale, hanger	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
21.	Resistance box	(0-10000 ohm)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
22.	Ammeter	(0-1A), (0-500 mA)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

23.	Connecting wire	coated copper	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
24.	Galvanometer	(30-0-30)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
25.	Voltmeter	(0-10V)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

26.	Flax Boards of do's and don'ts	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
27.	Flax Boards of experiments	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

Lot: - 2 Lot Name: - Applied Chemistry: Glass Apparatus & Materials

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference		Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipment/parts
1	Beaker, Tall Form, With Spout (Borosilicate's)	Capacity in ml	Approx. O.D X Height in mm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	50	38 x 70						
	ii)	100	48 x 80						
	iii)	150	54 X 95						
	iv)	250	60 x 120						
	v)	500	77 x 137						
	vi)	1000	95 x 180						
2	Bottles Reagent(Borosilicate's), Plain Narrow Mouth, Graduated	Interchangeable Flat Head Stopper. Capacity in ml	Approx. O.DX Height in mm	standard	Neck stopper(size)	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan	standard
	i)	250	70 x 120		19/26				

								Distt. Kangra H.P.	
	ii)	500	86 x 180		24/29				
	iii)	1000	100 x 230		29 / 32				
	iv)	2000	136 x 255		29 / 32				
3	Bottles, Wash, LDPE Plastic, Squeeze type, Screw Cap,	Capacity in ml	Approx. O.DX Height in mm	standard	Fitted with stoppers and Delivery Tubes	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	500	75X 167						
4(a)	(Borosilicate 's) Burettes Boroflo, Fitted With Boroflo GP (General Purpose),	Capacity in mL	Graduation Interval (ml)	standard	ScrewThread with PTFE Keys	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		50	0.1						

4(b)	Burettes, Straight Bore Stopcock	50	0.1		PTFE Key Stopcock		Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
5	China dish	Material : china clay	Sizes : 75mm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		Color : White	:100 mm						
6(a)	Cylinders, Graduated, Single Metric Scale(Borosilicate's)	Capacity in mL	Graduation Interval (ml)	standard	Penny Head Interchangeable Stopper with Hexagonal base with neck stopper of (sizes)	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	5	0.1		10 / 15				
	ii)	10	0.2		10 / 15				

	iii)	25	0.5		14 / 15				
	iv)	50	0.1		14 / 15				
	v)	100	0.1		19 / 20				
6(b)	Cylinders, Graduated, Single Metric Scale, with Pour Out, with hexagonal Base(borosilicate's)	Capacity in mL	Graduation Interval (ml)				Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
	i)	250	2	standard	standard	standard			
	ii)	500	5						
	iii)	1000	10						
7	Desiccators(borosilicate's)	Approx. ID Ground Flange mm = 100		standard	with glass Cover and Porcelain Plate, glass knob	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic	standard

								(Women), Rehan Distt. Kangra H.P.	
8	Dropper	Borosilicate Glass , capacity 10 ml with rubber holder		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
9(a)	Flasks, Erlenmeyer, Conical, Narrow Mouth(Neck O.D. Mm =22)	capacity ml	Approx. O.D. x Height mm	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	150	64 x 105						
9(b)	Flasks, Erlenmeyer, Conical, Narrow Mouth(Neck O.D. Mm =34)	250	85 x 145	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

10	Flasks, Iodine Determination	capacity ml	Interchangeable Joint size	standard	Interchangeable Solid Glass Stopper,	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	100	24 / 29						
	ii)	250	24 / 29						
11	Flasks, Volumetric(borosilicate's)	Capacity ml	Tolerance \pm ml	standard	Interchangeable Solid Glass Stopperhaving (sizes)	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
	i)	50	0.06		,10/15				
	ii)	100	0.1		14 / 15				
	iii)	250	0.15		14 / 15				
	iv)	500	0.25		19 / 20				
	v)	1000	0.4		19 / 20				
	vi)	2000	0.6		24 / 25				

12	Filter paper (ordinary)	Grade 602 h qualitative filter paper has the pore size of 2 µm. Size: 12.5cm (PACK OF 100 RIMS)		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
13	Whatman qualitative ashless filter paper	Liquid Filtration Material: Fibre Shape: Round		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
14	Funnels, Plain, 60° Angle, Short Stem(borosilicate's)	1)Made 3.3 borosilicate glass, USP Type I	3) Diameter mm = 75	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		2)Designed with a 60° bowl angle to ensure precise fitting of the filter paper	4) Diameter mm = 100						
15	Pipettes, Transfer, Volumetric(b	Capacity ml	Tolerance ± ml	standard	standard	standard	Manuals to be supplied with	To be supplied and	standard

	orosilicate's)						equipment's	installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
	i)	10	0.02						
	ii)	20	0.03						
16	Pestle and Mortar	Material : Ceramic and Wooden Handle Pestle Mortar Diameter =4.5 Inch		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
17	Stirrer	Made of polished 3.3 borosilicate glass	Approx. O.D. x Length mm = 9 x 255	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
18	Watch Glasses, Borosil S - Line	Made of soda glass		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and	standard

		Capacity ml						installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
	i)	100							
	ii)	150							
19	TONGS FOR BEAKERS	Made of stainless steel					Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		Provided with silicon sleeves or in fibre glass yarn to resist direct flame	Size Inches =10	standard	standard	standard			
20	TONGS FOR CRUCIBLE	Made of Stainless Steel					Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		Crucible tong with bow stainless steel	Size Inches =12	standard	standard	standard			
21	SPATULAS	Made of stainless steel grade 202		standard	standard	standard	Manuals to be supplied with	To be supplied and	standard

		One end flat one spooned	Size Inches =6				equipment's	installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
22	Silica Crucible with lid	Material : Silica ,Crucible is glazed inside and outside.	50ml capacity	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		Highly resistant to alkalis and hot temperatures upto 1000 °C	Outside diameter 55mm, 42mm height						
23	Burette Stand	Material : Stainless Steel	Length Width 16 Inch 60 cm	standard	Retort , clamp	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
24	Test Tubes	Test tubes 4x1/2" (6 pcs) and Borosilicate Glass with Rim		standard	Plastic Test Tube Stand (Blue) ,Wooden Handle Chromium Plated Test Tube Holder	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women),	standard

								Rehan Distt. Kangra H.P.	
25	Test tube brush	Marking Colour white	12mm Diameter	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard
		Material Type nylon	300mm						
26	Tripod Stand	Triangular top, made of Mild Steel wire. Lower end of legs covered with plastic cap to avoid scratching the work surface	Size : 6" x 4", 8" x 4", 8" x 5"	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	standard

Lot: - 3 Lot Name: - Chemicals for Applied Chemistry Lab.

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference		Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipmen t/parts
1.	Ammonium Chloride(LR) (pack of 500 g)	NH ₄ Cl. M.W. 53.49 White crystalline solid ,	soluble in water(37%) assay ≥99.5% & vapour density 1.9 (vs air)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
2.	Ammonium Sulphate (pack of 500 g)	(NH ₄) ₂ SO ₄ or H ₈ N ₂ O ₄ S Molecular Weight: 132.14 g/mol	A high-melting (decomposes above 280°C) COLOR: white solid which is very soluble in water Min.assay 98.5%	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
3.	Ammonia Buffer (solution) (bottle of 500ml)	for complexometry (ammonium chloride/ammonia)	pH = 10-11	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt.	1 year

								Kangra H.P.	
4.	Acetone (bottle of 2.5 Ltr)	i) Chemical formula CH_3COCH_3 , ii) M.W. 58.08 g/mol ii) Clear Liquid iv) Purity w% 99.5 min Water Content w% 0.5 max	Freezing/Melting Point -94 deg. C ; Boiling Points 56 deg. C ; pH 7	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
5.	Glacial Acetic Acid CH_3COOH (bottle of 500 ml)	Min. assay : 99.85 % min. by wt. Water : 00.15 % max. Colour: 10 APHA max	.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
6.	Calcium Chloride(fused) (pack of 500 g)	CaCl_2 , M.W. 110.99 crystalline, lumpy, or flaky, Min. assay 95%	soluble in water (Powder not preferred)	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
7.	Cupric Sulphate(pentahydrate) (pack of 500 g)	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ M.W. 249.68 Blue crystalline solid	ASSAY (DRIED BASIS) 98.5 % - 100.5%	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt.	1 year

								Polytechnic (Women), Rehan Distt. Kangra H.P.	
8.	Calcium Carbonate (pack of 500 g)	CaCO ₃ , M.W. 100 g/mol colour: white, odourless powder	Whiteness : 98% min Content CaCO ₃ : 98% min	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
9.	Clean sol (lab wash) (bottle of 5 Ltr)	1) Phosphate FREE alkaline detergent made up of high-quality anionic & non-ionic surfactants with total solid content between 17% -20% 2) Bio-degradable.	3) Non hazardous. 4) Free from scents/toxic ingredients.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
10.	Ethyl Alcohol (absolute) (bottle of 500 ml)	Molecular formula: C ₂ H ₆ O Molar Mass: 46.07 g/mol	colorless liquid that has a slight odour.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year

11.	EDTA (pack of 500 g)	Chemical Name: EDTA Disodium Salt (Ethylene Diamine Tetra Acetic Acid) Min. Max. ASSAY :99.0. 101.0 %.	pH OF A 1 IN 100 SOLUTION. 4.3. 4.7. Color: White Powder Active Ingredient:Na ₂ EDTA	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
12.	Eriochrome Black - T(indicator) (pack of 500 g)	Appearance (Colour) : Brown Appearance (Form) :Powder		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
13.	Ferrous Ammonium Sulphate(Mohrs salt) (pack of 500 g)	Chemical formula: FeSO ₄ .(NH ₄) ₂ SO ₄ .6H ₂ O Composition :- Iron :- 14% Nitrogen :- 7% Sulphur :- 8%	crystalline water soluble solid .	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
14.	Ferrous Sulphate (pack of 500 g)	FERROUS SULPHATE HEPTAHYDRATE – AR/GR Grade Colour: Green Crystal or	Odorless, Efflorescent, Oxidized in moist Air. Insoluble Matter : 0.01% Max. Chloride : 0.001% Max.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women),	1 year

		Crystalline Powder	Potassium : 0.002% Max.					Rehan Distt. Kangra H.P.	
15.	Hydrochloric Acid (bottle of 2.5 Ltr)	MELTING POINT:-25 °C BOILING POINT:85°C DENSITY:1.19 kg/l	SOLUBILITY: Miscible with water PHYSICAL DESCRIPTION: liquid	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
16.	Litmus Paper(Blue and Red) (pack of 100 strips)	Litmus pH Test Strips, Universal Application (pH 1-14),		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
17.	Methyl Orange (pack of 25g)	Chemical Formula:C ₁₄ H ₁₄ N ₃ NaO ₃ S Molecular Weight:327.34	Transition Range:pH 3.0-4.4 Pink-Orange yellow	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
18.	Magnesium Chloride (pack of 500)	Molecular formula: MgCl ₂ ·6H ₂ O	Appearance: White crystals, Granular or	standard	standard	standard	Manuals to be supplied with	To be supplied and	1 year

	g)	Molar Mass: 203.31g/mol Density: 1.569g/cm ³	Flakes Solubility in Water: 157 g/100 mL (20 °C)				equipment's	installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
19.	Oxalic Acid Dehydrate (pack of 500 g)	Molecular Formula (COOH) ₂ .2H ₂ O Molecular Weight 126.07	Description: Snow white Crystals Purity: 99.6 % Min	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
20.	Potassium Chloride (pack of 500 g)	98% min KCl Potassium Chloride		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
21.	Phenolphtha lein (pack of 100 g)	Molecular Formula : C ₂₀ H ₁₄ O ₄ Molecular Weight : 318.33	White to yellowish white powder Transition range pH 8.2 - pH 9.8 almost colorless - red- violet	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year

22.	Potassium Permanganate (pack of 500 g)	ATOMIC OR MOLECULAR FORMULA KMnO_4 ATOMIC OR MOLECULAR WEIGHT 158.03	Colour: Dark purple or brownish black to almost black crystals with metallic lustre . Solubility 5% solution in water is clear. Assay (Iodometric) 99.5 – 100.5%	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
23.	Potassium Iodide (pack of 500 g)	MOLECULAR FORMULA KI ATOMIC OR MOLECULAR WEIGHT 166.00	Colour: Colourless or white crystals /crystalline powder. Solubility 20% solution in water is clear and colourless up to 48 hours. Minimum Assay (oxidimetric; after drying) 99.8%	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
24.	Potassium Hydroxide (pack of 500 g)	ATOMIC OR MOLECULAR FORMULA KOH ATOMIC OR MOLECULAR WEIGHT 56.11	Description: White deliquescent pellets. Solubility 10% solution in water is clear, colourless. Minimum Assay (Acidimetric) 85.0%	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year

25.	Sodium Chloride (pack of 500 g)	Non-Iodized, Granular, FCC Molecular Weight 58.44	ASSAY (DRIED BASIS) 99.0 100.5 %	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
26.	Sodium Bicarbonate (pack of 500 g)	Physical Condition: Free flowing tiny crystals. Solubility : Soluble in water, insoluble in ethanol	NaHCO ₃ % 99,30 min	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
27.	Sodium Carbonate (pack of 500 g)	Molecular Formula Na ₂ CO ₃ Molecular Weight 105.99 white, granular, alkaline material.	Odorless 99.2 % w/w min.	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
28.	STARCH SOLUBLE (EX POTATO) AR (pack of 500 g)	Description: A White to off white powder. . pH (at 25 0 C, 2% Solution) 5.0-7.5		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women),	1 year

								Rehan Distt. Kangra H.P.	
29.	Sodium Thiosulphate (pack of 500 g)	Appearance: White crystalline solid $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ 99% min. pH (10% solution) 6.5 to 8.0 Solubility Soluble in water		standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
30.	Sodium Hydroxide(p allets) (pack of 500 g)	Color:White	Assay : $\geq 97.0\%$	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
31.	Sodium Iodide (pack of 100 g)	Molecular Formula : NaI Molecular Weight : 149.89	Appearance : Colourless to White solid	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year
32.	Sulphuric Acid (bottle of 2.5 ltr)	Appearance : Clear, transparent,	Concentration 98% by weight minimum	standard	standard	standard	Manuals to be supplied with	To be supplied and	1 year

		viscous liquid free from sediment & sludge matter					equipment's	installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	
33.	Silicone Greese (pack of 50 g)	consists of a Silicone Lubricating fluid thickened with a special complex Lithium soap. Temperature (-50 ° C to 220° C).	This grease should be available in three consistencies (light, medium and heavy).	standard	standard	standard	Manuals to be supplied with equipment's	To be supplied and installed at the Govt. Polytechnic (Women), Rehan Distt. Kangra H.P.	1 year

Lot: - 4 Lot Name: - Equipment's for Applied Chemistry Lab.

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference	Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipmen t/parts
1.	Muffle furnace	Temp. Range 1000-1200 degree Celsius, the outer casting is made up of thick mild steel finished with epoxy based powdered coated paint, standard heating element(KANTHAL-Ä-1" wire), indicator pyrometer. chromal alumel thermocouple, 220/230 v AC fitted with energy regulators and indicating lights, 125X125X250 mm ,2 KW	standard	Standard accessories and pair of safety gloves.	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
2.	Redwood Viscometer	Heavy silver plated brass cup fitted with jet at the bottom with the brass cover having suitable slot for oil cup,2 thermometers (range 0-200 degree Celsius); standard stainless steel bath brightly polished, provided with an immersion heater. Cord, electrical fitting and drain out. Stop cock. thermometer spring slip to support thermometer, temperature regulator, energy regulator	standard	*collecting flask(Kohlrausch flask 50 ml) *stop watch(electronic or mechanical) *Thermometers	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year

3.	Analytical electronic balance	Weighing range min. 0.1 g max.-500 steel/chrome plated pan, both function of batteries and main adapter, auto off function.	standard	*Charger	standard		- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
4.	Electric Hot plates(rectangular)	provided with temperature controller having temperature range up to 350 degree celcius,,220-230 v,size200 - 300 Mm , heavy duty cast iron top Suitable for general use in laboratory	standard	- Standard accessories - All the tools & keys required to operate the machine with attachments - With Suitable Starter / DOL	standard	User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
5.	Digital p H meter	p H range(0 to 14), digital display with automatic polarity and decimal point indication, operating temperature 10 -50 degree Celsius, dimensions: 76mm(H)	standard	standard accessories like(combination p H electrode,electrode stand and	standard	User/Operating Manual - List of Service Centres in Himachal	- To be installed at Govt. Polytechnic(Women),	One Year

		X275mm(W)X175mm(D),weight about 2 kg		clamp,buffer bottles with tablet,dust cover			Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	
6.	Heating mantle	Heating mantle with aluminium plated metal body, heating element of 120 W, voltage input of 120 watts, energy regulator switch. Indicating temperature and integrated cable connecting socket. Capacity(500 ml.	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
7.	Double Distillation apparatus	Borosilicate apparatus consists of two flasks of 3 to 5 litres with heating element embedded in sprig coil internally at bottom and trapped ground Glass joints at the top ,suitable to work on 220 v with electric board with switch, neon light indicators connecting .	standard	- accessories like metallic stand having ring to hold flasks clamp to hold condensers, 'cords to flasks and mains.	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as	One Year

							required by Faculty	
8.	Hot Air Oven	Temperature control with dual display of set and actual temperature. Double walled inside of stainless steel and outer made of mild steel duly powder coated. Hinged insulated door with heat resistant gasket, proper insulation with mineral wool ,proper air circulation for uniform temperature. Power supply 220 v ,50 Hz single phase AC.(size of inner chamber 350X350X350mm) with 2 or 3 trays.	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
9.	Water bath	rectangular with microprocessor bored PID digital controller, with dual display. 300X250X100 mm(WX H X D) with 6 holes of 75 mm dia.Double walled chamber made from stainless steel wihtduly finished coating paint.	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One year

10.	Rheostat	6 inches, brass rod, metal feet, common range	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic (Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	One Year
11.	Milliammeter	A, DC milliammeter Set of (0-1A), (0-500 mA)	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic (Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	
12.	Battery	6V	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic (Women), Rehan Distt. Kangra in	

							Himachal Pradesh - Training as required by Faculty	
13.	Two ways plug key	6*3*3cm	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	
14.	Connecting wires	Coated copper	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	

15.	Copper plates	Thick with terminal	standard	standard	standard	- User/Operating Manual - List of Service Centres in Himachal - Warranty Certificates	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh - Training as required by Faculty	
16.	Periodic Table Chart	Shows essential element information clearly and colorfully, includes element symbol, atomic number, element name, atomic mass and radioactivity, properly laminated. Qualifying Standard of size L 90 cm H 60 cm	standard	standard	standard	Standard	- To be installed at designated Polytechnic in Himachal Pradesh - Training as required by Faculty	Min. 2 years
17.	Flax Boards of do's and don'ts	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	standard	standard	standard	Standard	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh	Min. 2 years

18.	Flax Boards of experiments	Durable material Hang your banners easily with optional eyelets (strongly recommended) of size L X H 52 cm x 91 cm	standard	standard	standard	Standard	- To be installed at Govt. Polytechnic(Women), Rehan Distt. Kangra in Himachal Pradesh	Min. 2 years

Lot: - 5 Lot Name: - Language Lab other items & equipment's for Language lab.

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference	Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipment/parts
1	Smart Board Interactive Whiteboard System	(i) SMART Unifi 35 Projection System <ul style="list-style-type: none"> • Projector Size: 37 cm x 66 cm x 122 cm (HxWxD) • Brightness : 1500 Lumen • Contrast Ratio : 1000: 1 • Resolution : 1024x768 • Lamp Life : 3000 Hours • Video Mode : 720p, 1080i, 576i, 576p, 480p, 480i • Speaker : 20 W (Mono) • Connectivity: USB (ii) SMART Board Interactive Whiteboard <ul style="list-style-type: none"> • Size: 139.2 cm × 105.8 cm × 13 cm (WxHxD) • Active Screen Area : 130.2 cm × 97.2 cm (WxH) • Touch Resolution: Approximately 4000 × 4000 • Digitizing Technology: Four-camera DViT (Digital Vision Touch) technology • Screen Surface: The hard-coated steel surface is durable, optimized for projection, compatible with dry-erase markers and easily cleaned. • Pen Tray: Optical sensors in the pen tray detect when you lift a pen or the 	Supports touch sensitive and operates as part of a system that includes a computer and a data projector. Also supports the data that is present in the board can be clicked on, moved, copied and analyzed.	<ul style="list-style-type: none"> • Pens and Erasers(Black, blue, red and green pens and a rectangular eraser two each) • Cables: All requisite cables required for connectivity with system (such as 1.8 m HD-DB15 male-to-male video, 3 m DVI-I to HD-DB15 male video, 1.8 m and 5 m USB cables) • Wall-mount bracts and all fitting accessories 	Standard	<ul style="list-style-type: none"> • User's manuals, Address of service provider 	<ul style="list-style-type: none"> • To be supplied and fitted, installed and tested at the Govt. Polytechnic(Women), Rehan Dist. Kangra H.P. • Training on usage of all the features of the Smart Board 	<ul style="list-style-type: none"> • 02 years onsite warranty from the date of installation

		eraser from the tray. LEDs show the active too • Pens and Erasers: Black, blue, red and green pens and a rectangular eraser						
2	Wall Clock	• Dimensions : 18" Height x 18" Wide, Dial size – 12" • Material: Plastic/Wooden • Shape : Round • Battery Type: AA; Number of Batteries: 1 • High Quality Non Ticking Sweep Movement.	Standard	Standard	Standard	As per standard.	• To be supplied and fitted, installed and tested at the Govt. Polytechnic(Women), Rehan Distt. Kangra H.P.	2 Years replacement warranty on movement machine

4. Drawings

Not Applicable