

SAMTSE COLLEGE OF EDUCATION



STANDARD BIDDING DOCUMENT

Supply of Science Lab Equipment, Items & Chemical items for 2024-2025



Royal Government of Bhutan Ministry of Finance 2023





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| 1 | Package | 6 |
|---|-------------------------|--------------------------------------------------------------|
| 2 | Quotation | Supply of Science Lab Equipment & Items for 2024- 2025 |
| 3 | Last date of submission | 22 th July,2024 at 12pm |
| 4 | Place of submission | Office of Store In-Charge |
| 5 | Date of opening | 22 th July, 2024 at 2.30pm |
| 6 | Place of opening | Conference Hall |
| 7 | EMD | Nu. 12000 (Twelve Thousand only) |



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Supply of Science Lab Equipment, Items & chemical items for 2024-2025

TERMS AND CONDITIONS

- 1. The rates quoted shall be CIF Samtse College of Education for the **Supply of** Science Lab Equipment, Items & Chemical items for 2024-2025. Generally, the rates quoted shall be inclusive of all charges/levies/taxes which the suppliers shall bear.
- 2. The quotation should be accompanied by the valid trade license issued by the Ministry of Economic Affairs and the Tax Clearance Certificate issued by the Department of Revenue and Customs, Royal Government of Bhutan, as the enclosure. Quotation without a valid trade license and tax certificate as enclosure shall be rejected.
- 3. The tender shall be accompanied by an application to the PRESIDENT, Samtse College of Education.
- 4. Sealed envelopes containing the quotation shall be marked **Original** and **Duplicate** in separate envelopes. The quotation will be opened in the Conference Hall, Samtse College of Education on 22th July 2024 at 2.30 PM.
- 5. The rates quoted shall be valid for a period of 12 months from the date of quotation.
- 6. Goods should be supplied within 30 days from the date of issue of the purchase order.
- 7. Earnest money of **Nu.12000.00** (**Twelve thousand**) only should be furnished in the form of Cash Warrant/Bank Draft/Unconditional bank guarantee in favor of the PRESIDENT, Samtse College of Education. Quotation without earnest money shall be rejected.
- 8. The College reserves the right to vary the quantity up to 10% on the same terms and conditions.
- 9. All equipment supplied must be as per the specification and any fake item noticed shall be rejected, returned at the supplier's cost and shall be dealt with as per Clause 18 of the terms and conditions.
- 10. The College reserves the right to reject all or any tender without assigning any reason.





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- 11. If the supplier fails to supply the required quality and quantity of goods, the College Administration will forfeit the earnest money and terminate the contract without any explanation and the supply order will be given to the next evaluated lowest bidder.
- 12. Failing to submit the quotation within the submission dateline shall be declared as 'late' and rejected. The same would be returned unopened to the supplier.
- 13. The rules and regulations for the establishment and operation of Industrial and Commercial ventures must be adhered to with regard to the establishment of license ventures.
- 14. The rates should be quoted against the specification provided and failing to quote in conformity with the specification shall be disqualified for evaluation.
- 15. The purchaser shall not be responsible for any damage, loss or due incident that occurred during the transportation. The supplier will be fully responsible for making them good at his own cost.
- 16. The supplier should have a warranty of one year from the date of delivery.
- 17. The supplier should be able to supply the material immediately during the time of emergency and if the bidder fails to supply the required material the bidder shall bear the expenses to purchase from another supplier for the College, Samtse.
- 18. The committee will directly reject the tender if the supplier supplies duplicate/fake or compromised material and the College Administration will forfeit the earnest money and terminate the contract without any explanation and the supply order will be given to the next evaluated lowest bidder.
- 19. If the selected bidder fails to supply the goods within the stipulated time, the liquidated damages of Nu.0.1% per day of the bill amount will be imposed.
- 20. Pursuant to the condition above, the second-lowest bidder at his quoted rate shall be asked to supply the goods after submitting performance security to the College Administration.
- 21. The performance security retained with the College shall be refunded to the concerned supplier after the completion of the supply of goods.
- 22. The College will process the bills for payment only upon complete delivery of the goods to the College.
- 23. Decision taken by the College Tender Committee will be final and binding.



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24. In addition to the terms and conditions mentioned above, all other relevant regulations of the Procurement Rules and Regulation 2023, shall apply where specific mention is not made.



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| 1. Biology Annual Quotation 2024-2025 | | | | | | | |
|---------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|--|--|--|
| SL.NO | Particulars | Specifications | Rate | Remarks | | | |
| | Equipments list | | | | | | |
| 1 | Ganong's Potometer | Borosilicate Glass | | | | | |
| | Ganong's Potometer | with strong wooden stand and borosilicate glass | | | | | |
| 2 | with wooden base | apparatus | | | | | |
| 3 | Centrifuge Round | Fitted with motor for vibration free performance & 5 step regulator. Elegant finish with powder coated paint. Works on 220V/230V AC. (15 mls x 8Tubes) | | | | | |
| | C | Automatic inflate, oscillometric, Liquid crystal Display. Rated cluff pressure: | | | | | |
| | | OmmHg-300mmHg; Mesurement | | | | | |
| | Digital Blood pressure | pressure: 40mmHg-230mmHg, Pulse | | | | | |
| 4 | monitor | value: (40-199) times in minute. | | | | | |
| 5 | B.O.D incubator | Outside made of mild steel with powder coated paint. Inside made up of aluminium/stainless steel. The double wall door with asbestos gasket lining is fitted on heavy brass cast chromium plated hinges and has a chromium plated latch type lock. Temperature can be controlled from few degree above ambient to 70°C by thermostat. Works on 220/230V AC supply with or without air circulating fan. | | | | | |
| 6 | Incubator | Outside made of mild steel with powder coated paint. Inside made up of aluminium/stainless steel with 2/3 shelves. Inside ccrylic glass door. Temperature is controlled with microprocessor PID digital temp. controller to get temperature from 5° to 60°±1° to work on 220/230V AC. Fitted with two air circulating fans. | | | | | |



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| | Hot plate with | 1.5 m of mains cable and one each coated magnetic stirring bars, 20 mm | | |
|----|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| 7 | Mangnetic stirrer | and 40 mm long with support rod | Sample | |
| 8 | Digital weighing Scale (for human body) Consumables | Strain gauge sensors system 1.5" (38mm) LCD digits, Auto zero – Auto off Low battery / over load indication Power: 1x CR 2032 3V Lithium batteries. Capacity: 200kg | | |
| | Consumantes | | | |
| 1 | Cork | Rubber cork with different size in set | | |
| 2 | Gloves | Nitrile gloves with high resistant to chemicals | | |
| 3 | Hand lens | 75mm, 50mm | | |
| 4 | Beaker | 250ML, 500ML(Borosil) | | |
| 5 | Brain (Model) | well labelded in English | | |
| 6 | Animal Cell(Model) | well labelded in English | | |
| 7 | Human Ear (model) | well labelded in English | | |
| 8 | Eye Model | well labelded in English | | |
| 9 | Ice Bucket | 5 L | | |
| 10 | Watch Glass | 75mm, Borosil | | |
| 11 | Bloting paper | NICE | | |
| 12 | Test tube | 50ml Borosil | | |
| 13 | Forceps | Stainless steel with sharp point | | |
| 14 | Grid quadrat | one metre square | | |
| 15 | Kick Sampler Net/ Triangular dip net | Frame size of 25x25cm, Mesh size- 0.5µm | | |
| 16 | Water boots | King size, medium size | | |
| 17 | Lens Cleaning Tissues | Brand -Nice | | |
| 18 | Meter scale | Wooden, 100cm | | |
| 19 | Ice Tray | Durable rigit ice tray, 600ML | | |
| 20 | Soil testing Kit | For checking the pH, Nitrogen, Phosphorous & Potassium Availability in soil, (NICE). | | |



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| 21 | Water Testing kit | For the estimation of Total Hardness |
|----|-------------------------|------------------------------------------------------|
| 22 | Water Testing kit | For the estimation of Total Alkalinity & PH |
| | Water Testing kit | |
| 23 | Water Testing Kit | Estimation of Fluoride, Chloride & residual chlorine |
| 24 | Specimen sorting Tray | Polythene laboratory white tray |
| 25 | First Aids Box | Packed in a plastic with all necessary present. |
| 26 | Cryotags | Round |
| 27 | Polythene bag | Polythene |
| | - | |
| 28 | Spring balance | With metric graduations, capacity 10kg |
| 29 | Wash bottle | Polythene |
| | | |
| 30 | Field rain coat | Big and medium sizes, best quality |
| 31 | Files (Reti) | Having three sizes |
| | | Clear Hard Coat lens, (Meets ANSI |
| 32 | Googles (spectacles) | z87.1-2010 standards) |
| 33 | Lab coat | XXL,XL & medium |
| 34 | Measuring tape | 50ml |
| 35 | Distilled Water | Demineralised water, Nice |
| | Permenant Slide | |
| 1 | Plant cell | Clear and good quality |
| 2 | Animal cell | Clear and good quality |
| 3 | Mitosis stages(All) | Clear and good quality |
| 4 | Meiosis stages(All) | Clear and good quality |
| 5 | Bacteria | Clear and good quality |
| 6 | Nerve cell | Clear and good quality |
| 7 | Cardiac muscle | Clear and good quality |
| 8 | striated muscle | Clear and good quality |
| 9 | Mammalian Pencras (T.S) | Clear and good quality |
| 10 | Paramacium | Clear and good quality |
| 11 | Amoeba | Clear and good quality |



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| 12 | Euglena | Clear and good quality |
|-----|--------------------------|------------------------|
| 13 | Monocot steam | Clear and good quality |
| 14 | Dicot steam | Clear and good quality |
| 15 | Monocot leaf | Clear and good quality |
| 16 | Dicot leaf | Clear and good quality |
| 17 | Monocot root | Clear and good quality |
| 18 | Dicot root | Clear and good quality |
| | Chemicals | |
| 1 | Sodium Chloride | MERCK |
| 2 | Sodium carbonate | MERCK |
| 3 | Sodium bicarbonate | MERCK |
| | Agar Agar (used for | |
| 4 | the bacteria extraction) | MERCK |
| 5 | Auxin | MERCK |
| 6 | Indole acetic acid | MERCK |
| 7 | Sucrose | MERCK |
| 8 | Seliwanoff's reagent | MERCK |
| 9 | Barfoed reagent | MERCK |
| 10 | Bials reagent | MERCK |
| 11 | Eoxin solution | MERCK |
| 12 | Maltose | MERCK |
| 13 | Ribose | MERCK |
| 14 | Glycerine | MERCK |
| 15 | Spirit | MERCK |
| 16 | Sodium Hydroxide | MERCK |
| 17 | Neutral red solution | MERCK |
| 18 | Litmus solution red | MERCK |
| 1.0 | Methylene blue | L TOP GI |
| 19 | aqueous | MERCK |
| 20 | Methyl red solution | MERCK |
| 21 | Methyl orange solution | MERCK |
| 22 | copper carbonate | MERCK |
| 23 | Zinc oxide | MERCK |
| 24 | Ammonium hudroxide | MERCK |
| 25 | Magnesium | MERCK |



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| 26 | Sulphur | MERCK | |
|----|-----------------------|-------|--|
| 27 | Barium chloride | MERCK | |
| 28 | sodium Sulphate | MERCK | |
| | Copper sulphare | | |
| 29 | crystal | MERCK | |
| 30 | Iodine solution | MERCK | |
| 31 | sulphur powder | MERCK | |
| 32 | Hydrogen peroxide | MERCK | |
| 33 | Ethanol | MERCK | |
| 34 | Sodium Chloride | MERCK | |
| 35 | Amonia solution | MERCK | |
| 36 | Acetocarmine | MERCK | |
| 37 | Giemsa stain solution | MERCK | |
| 38 | Sudan III solution | MERCK | |
| 39 | wright's stain powder | MERCK | |
| | Monoclonal Antibodies | | |
| | (Anti-A, | | |
| 40 | B and D) | MERCK | |
| 41 | Safranine | MERCK | |
| 42 | Glycerine | MERCK | |



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| 2. | 2. Chemistry Lab items For 2023-2024 | | | | |
|------------|--------------------------------------|-------|------------|------|---------|
| Sl.No s | Name | | Speciation | Rate | Remarks |
| CONSI | UMABLE ITEMS | | | | |
| 1 | Methyl red indicator | 500ml | MERCK | | |
| 2 | Brucine Sulfate | 500g | MERCK | | |
| 3 | Ethanol | 500ml | MERCK | | |
| 4 | Diphenyl indicator | 500ml | MERCK | | |
| 5 | Petroleium either | 500ml | MERCK | | |
| 6 | Potassium chloroplatinate | 500g | MERCK | | |
| 7 | selenium powder | 500g | MERCK | | |
| 8 | zironyl chloride ocathydrate | 500g | MERCK | | |
| 9 | Ferric sulphate | 500g | MERCK | | |
| 10 | Ferrion indicator | 500ml | MERCK | | |
| 11 | LAS | 500g | MERCK | | |
| 12 | Macroeticular resign | 500g | MERCK | | |
| 13 | Ammonium solution | 500ml | MERCK | | |
| 14 | Aluminium Chloride | 500g | MERCK | | |
| 15 | Zinc Chloride | 500g | MERCK | | |
| 16 | Methyl acetate | 500g | MERCK | | |
| 17 | Propionic acid | 500ml | MERCK | | |
| 18 | Aniline | 500ml | MERCK | | |
| 19 | Dimethyl Pheylamine | 500ml | MERCK | | |
| 20 | M-Dinitro Benzene | 500g | MERCK | | |
| 21 | Ether | 500g | MERCK | | |
| 22 | Manganous Sulphate | 500g | MERCK | | |
| 23 | Potassium iodate | 500g | MERCK | | |
| 24 | Sodium sulphide | 500g | MERCK | | |
| 25 | Eolochrome Black T | 500ml | MERCK | | |
| 26 | Siliver Sulphate | 500g | MERCK | | |
| 27 | Siliver Nitrate | 500g | MERCK | | |
| 28 | Ammonium Thiocynate | 500g | MERCK | | |
| 29 | Ammoium dichromate | 500g | MERCK | | |

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: 05 365391(President) 365274 (Adm) 365273 (Office) 365363 (Fax) P.O Box No. 329



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| 30 | Ammonium nitrate | 500g | MERCK | |
|----|----------------------|-----------|---------|--|
| 31 | Ammonium chloride | 500g | MERCK | |
| 32 | Aluminium nitrate | 500g | MERCK | |
| 33 | Ammonium | 500g | MERCK | |
| | bicarbonate | | | |
| 34 | Ammonium chloride | 500g | MERCK | |
| 35 | Copper sulphate | 500g | MERCK | |
| 36 | Calcium powder | 500g | MERCK | |
| 37 | Calcium nitrate | 500g | MERCK | |
| 38 | Calcium chloride | 500g | MERCK | |
| 39 | Magnesium Chloride | 500g | MERCK | |
| 40 | Manganous chloride | 500g | MERCK | |
| 41 | Zinc Sulphite | 500g | MERCK | |
| 42 | Zinc Nitrate | 500g | MERCK | |
| 43 | Felling solution B | 500ml | MERCK | |
| 44 | Molish's Reagent | 500ml | MERCK | |
| 45 | Nessler Reagent | 500ml | MERCK | |
| 46 | Litmus solution red | 500ml | MERCK | |
| 47 | Tollen's Reagent | 500ml | MERCK | |
| 48 | Sodium thiosulphate | 500g | MERCK | |
| 49 | Baurite ore | 500g | MERCK | |
| 50 | Universal indicator | 500ml | MERCK | |
| | solution | | | |
| 51 | Iodine Solution | 500ml | MERCK | |
| 52 | Nitric acid | 500ml | MERCK | |
| 53 | Oxalic acid | 500ml | MERCK | |
| 54 | Acetic acid | 500ml | MERCK | |
| 55 | Methanol | 500ml | MERCK | |
| 56 | Ferric sulphate | 500g | MERCK | |
| 57 | Zinc Sulphate | 500g | MERCK | |
| 58 | Zinc Nitrate | 500g | MERCK | |
| 59 | Starch soluble | 500g | MERCK | |
| 60 | Acetone | 250ml | MERCK | |
| | | /500m | | |
| 61 | Molish's reagent | I 500~ | MERCK | |
| 61 | iviolisti s reagetit | 500g | IVIERCK | |



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| 62 | Hydrogen Peroxide 30% | 500ml | MERCK |
|----|----------------------------|-------------------|---------------------|
| 63 | Sodium Hydroxide | 500g | MERCK |
| 64 | Phenol | 500ml | MERCK |
| 65 | Ammonium Hydroxide | 500g | MERCK |
| 66 | Litmus paper Red | | 100leaves per pack. |
| 67 | Litmus paper Blue | | 100leaves per pack. |
| 68 | Universal indicator paper | | 100leaves per pack. |
| 69 | Strach paper | | 100leaves per pack. |
| 70 | Hydrochloric acid | 500ml | MERCK |
| 71 | Iodine crystal | 500g | MERCK |
| 72 | Beryllium carbonate | 500g | MERCK |
| 73 | Potassium Iodide | 500g | MERCK |
| 74 | Copper sulphate | 500g | MERCK |
| 75 | Isoprophyl alcohol | 500ml | MERCK |
| 76 | 2-Methylpropan-2-ol | 500ml | MERCK |
| 77 | Zinc sulphate | 500g | MERCK |
| 78 | Propanol | 500ml | MERCK |
| 79 | Sodium Hydrogen Sulfite | 500g | MERCK |
| 80 | Schiff's Reagent | 500ml | MERCK |
| 81 | Zinc Chloride | 500g | MERCK |
| 82 | Benzaldehyde | 500ml | MERCK |
| 83 | Acetaldehyde | 500ml | MERCK |
| 84 | Butanol | 500g | MERCK |
| 85 | Chlorobenzene | 500ml | MERCK |
| 86 | Glucose | 500g | MERCK |
| 87 | Iodobenzene | 500g | MERCK |
| 88 | Acetophenone | 500ml | MERCK |
| 89 | Bromobenzene | 500ml | MERCK |
| 90 | Chloroform | 500ml | MERCK |
| 91 | Sulphuric acid | 500ml | MERCK |
| 92 | Potassium Iodide Paper | per numbe r | 100leaves per pack. |



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| 93 | Universal Indicator Chart | per numbe r | Good quality | |
|----|-------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 94 | U-Tube | per numbe r | Borosil for salt bridge | |
| 95 | Stirring rod | sets or per numbe r | This Stirring rod is made of soft flint glass, with both ends fire-polished and rounded.Glass Stirring Rod 8". | |
| 96 | Silica crucible with lid | per numbe r | Material: Silica, capacity: 50ml, Usage/Application: Chemical laboratory, Colour:White, Shape:Round, Packinging type: Box, Weight:110g, Temperature: 700 to 1100 degree celcius, Height: 33mm. | |
| 97 | Beaker(Brosil) | per numbe r | 50ml | |
| | | per numbe r | 20ml | |
| | | per numbe r | 1000ml | |
| | | per numbe r | 100ml | |
| 98 | Droppers(with graduation ,made of brosil) | per numbe r | 1ml | |
| | | per numbe r | 10ml | |
| | | per numbe r | 25ml | |



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| | | per numbe r | 5ml | |
|-----|------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 99 | Pipette Filler | per numbe r | 10ml | |
| | | per numbe r | 25ml | |
| 100 | Burette clamp | per numbe r | Practical holder for anchoring burettes vertically on the support stand. The volume scale remains clearly readable. Moulded in Polypropylene making it completely corrosion proof The spring loaded jack in the middle provides a vice like grip to the Burette and prevents it from slipping Two tapered wedges are provided to ensure firm grip on rods having dia 1/2" or 3/8" (Ø 9,6 - 12,7 mm) | |
| 101 | Clamps | per numbe r | EISCO CH0688 Labs Clamp Retort, 3 PVC Coated Prongs (opens to 90mm in dia.) with Boss Head | |
| 102 | Volumatric flask | per numbe r | 10ml | |
| | | per numbe r | 25ml | |



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| | | per numbe r | 50ml | |
|-----|--------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | per numbe r | 100ml | |
| | | per numbe r | 500ml | |
| 103 | Nitrile Chemical Resistant Gloves | per numbe r | Durable , Protection against chemicals, diesel fuel, petrol and oil, Good anatomical fit applied for maximum comfort, 3-4 times longer life-span than equivalent vinyl/PVC gloves. | |
| 104 | Burette | per numbe r | Polycarb(plastic burette) | |
| 105 | Burette | per numbe r | Brosil | |
| 106 | Measuring cylinder(brosil) | per numbe r | 5ml | |
| | | per numbe r | 1ml | |
| | | per numbe r | 50ml | |
| | | per numbe r | 25ml | |
| 107 | Conical flask | numbe r | 250ml | |



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| | | numbe r | 100ml | |
|-----|-------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | numbe r | 500ml | |
| 108 | Copper Wire | rolls | Insulated with threat, 20mtrs length. | |
| 109 | Nichrome wire with loop | per numbe r | Alloys of nickel and chromium, 10 pcs per packet. | |
| 110 | Digital Thermometer | per numbe r | 0.01°C Sensitivity | |
| 111 | Thermometer | per numbe r | 0.01°C Sensitivity | |
| 112 | Tygon tubing | per numbe r | 12mm daimeter and 10 meter length | |
| 113 | Aspirator | per numbe r | Borosil | |
| 114 | Gloves | sets/p kt | Cut Resistant, Heat Resistant above 1500 degree celsius, Flame Resistant, Heat Preservation. Size: Free size and Wear type: full fingered. | |
| 115 | Crucible tong | sets/n umber | Stainless steel(50cm long) | |
| 116 | Kipps apparatus | per numbe r | Kipps apparatus | |
| 117 | Filter paper | rolls | Size 20cm | |



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| 118 | Calorimeter cup | Numb er | These styrofoam calorimeter cups (7.5 cm inside diameter, 10 cm deep) have 1.3 cm thick walls for excellent thermal properties. The lids have a hole for a temperature probe. Includes set of six cups with lids. | |
|-----|--------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 119 | Glass tough | Numb er | Borosil | |
| 120 | Ammeter | Numb er | Range from 0-5 amper | |
| 121 | Voltmeter | Numb er | Range from 0-5 volt | |
| 122 | Fire safety jacket for operating Muffle furnace. | Per n or sets | Heat resistance,Fire resistance,Woolen linen attached,Easy to wash,Do not bleach and Shrink resistance | |
| 123 | face shield for operating Muffle furnace. | per numbe r | Size:53-63cm,Color: White,Blue,Green,Yellow, Orange,Material:High impact resistance ABS and Visor Polycarbonate,8" | |
| 124 | Spatula | sets or per numbe r | stainless steel(20cm long) | |
| 125 | Sodium Metal | numbe r | | |
| 126 | Zinc Metal | numbe r | | |
| 127 | Potassium /metal | numbe r | | |
| | EQUIPMENTS | | | |



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| 1 | Ice box (medium size) | | 5ltrs | |
|---|-------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | per numbe r | 10 Litre | |
| 2 | Digital Balance | per numbe r | KERRO P7B, BL- 2204. Max: 220gm and Div- 0.1mg. | |
| 3 | Digital Multi meter set | per numbe r | capable of measuring AC/DC voltage up to 1000 volts 4,AC/DC current up to 10Amperes 5,resistance up to 50 Mega Ohm 6 and measuring frequency up to 100KHz 7. | |
| 4 | Magnetic stirrer | per numbe r | Capacity: 2-5 L, max temp.: capaable of operating upto 200 C(hot plate only),variable speed. Control cabinet finished: aluminium powder coated. Feature: included with hot plate. Complete accessories present. | |
| 5 | Fume hood | per numbe r | A front window sash made up of tempered glass that acts as a shield for theoperator against hazardous aerosols. A stainless steel sink installed inside the hood which is resistant to the vapors, Colour: Various ,Size: 1200/1500/1800*800*23 50mm | |



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| | 3. Physic Lab items for 2024-2025 | | | | | |
|----|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|--|--|
| SI | Items | Description and details (minimum specification of goods to be supplied) | Rate | Remarks | | |
| 1 | Electronics hobby kits | Electronic Components Project Kit or Breadboard, Capacitor, Resistor, LED, Switch with Multimeter | | | | |
| 2 | LED for electronics | LED Light Emitting Diodes LED Lamp Kit 5 Colors 5mm (300Pcs) Educational Electronic Hobby Kit | | | | |
| 3 | dc motor kits | 12V 7000-14000 RPM DC Motor Kit with 6- Pieces Small Electronic and Cylindrical, 2- Piece6-9 V and 2-Piece 3-9V Dual Shaft Toy DC Motor | | | | |
| 4 | water pump kits | Submersible Mini water pump DC 3-9v for DIY Science Projects with 9v, AA Holder, Switch and pipe complete set | | | | |
| 5 | Portable sun photometer | Hanna HI96713C Phosphate LR Portable Photometer | | | | |
| 6 | New simple closed-circuit experiment box | It include single-pole double throw switch 3pcs. 5 battery case 6pcs. Light bulb holder 3pcs. U shape wire 10 pcs. Thickend package box and manual book. | | | | |
| 7 | seismometer | sensitive instrument that can detect waves emitted by even the smallest earthquakes. | | | | |
| 8 | Bar Magnet | chrome steel in pairs with keepers 5cm long, good quality | | | | |
| 9 | Gold leaf electroscope | Used for detecting and measuring static electricity or voltage. | | | | |
| 10 | solar cell with motor | It consists of a simple puley, dia:16mm and capable of raising a mass of at least 4g. PE-237/17535 | | | | |



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| 11 | Coning balance tubulan | Made of Transparent comitie nine Corine | |
|---------|---------------------------|----------------------------------------------|------|
| 11 | Spring balance tubular | Made of Transparent acrylic pipe. Spring | |
| | plastic set of six SV193 | mechanism is clearly visible. Provided with | |
| | | zero adjustment and two hooks. Scaled and | |
| | | calibrated in both grams and newtons. | |
| | | Capacity 250gm/2.5N Blue, 500gm/5N | |
| | | Green, 1000gm/10N Biege, 2kg/20N Red, | |
| | | 3kg/30N White & 5kg/50N Yellow. | |
| 12 | Timing Ball SV684 | Device that records time of flight from | |
| | _ | moment of release of ball to the moment | |
| | | of impact (on ground or object). It can be | |
| | | used to conduct a number of experiments | |
| | | involving acceleration due to gravity (g). | |
| 13 | Colour mixture SV195 | it concists of the following items: color | |
| | | mixer control box, Power adaptor, Six leds | |
| | | in circular frame, Circular frame with hole, | |
| | | Circular frame screen,U-channel bench | |
| | | 50cm, Object rider-3 Nos, Instruction | |
| | | manual. | |
| 15 | Champion Sports Open Reel | 100 ft, 30 Meters, with Metal Spike, Hand | |
| 15 | Measuring Tape | Crank-Open Tape Measure for Track and | |
| | l Weasuring rape | Field, Long Jump - Durable, Dual-Sided | |
| | | | |
| | | Measuring Reel with Feet and Meter. | |
| 16 | Eye piece for vernier | 10X with cross wire set | |
| | microscope | | |
| 47 | • | | |
| 17 | potentiometer (10m wires) | Wooden base fitted with 4mm socket | |
| | | terminals, single wire and 100cm wooden | |
| | | scale. | |
| 18 | Soldering rod | 35W with good quality metal | |
| 19 | Soldering lead | 40-60 proportion | |
| 20 | Advanced digital | The travelling microscope fitted with | |
| | microscope | horizontal and vertical digital scales which | |
| | | allows to set 'zero' at any point.travel | |
| | | 176mm horizontal,175mm vertical.Digital | |
| | | readout:0.01mm.Microscope:50mm | |
| | | objective, 7xramsden eyepiece.Graticule: | |
| | | cross line on glass.Base: cast iron. | |
| 21 | Vernier or travelling | With 18cms.and 15cms.stainless steel | |
| | microscope | scales. vernier reading to 0.01mm, | |
| | | provided with achromatic objective and | |
| | | ramsden eye piece with fine cross line hair. | |
| | | Complete in nicely polished case. | |
| <u></u> | | complete in filtery polished case. | |



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| 22 | Joule's Calorimeter | Dimension (L*W*H) Size: Outer vessel wooden box: 15cm Dia approx.Inner vessel calorimeter copper:10cm Dia approx. | |
|----|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 23 | Galvanometers | 30-0-30 divisions. Sensitivity 2mA/division | |
| 24 | Galvanometers | 10-0-10 divisions. Sensitivity 2mA/division | |
| 25 | Junction diode characteristics app. | Box type with all accessories to study forward and reverse bias characteristics. | |
| 26 | Zener diode characteristics app. | Box type with all accessories to study forward and reverse bias characteristics | |
| 27 | Transistor characteristics app. | Box type with all accessories to study input, output and transfer characteristics of pnp and npn | |
| 28 | Magnetic field along the axis | 0-16V DC continuously variable and stabilized | |
| 29 | Resonace Column Apparatus | Resonance Column Apparatus with Complete Set with Rubber Tube and Vessel used for Laboratory Purposes. It consists of chrome plated brass resonance tube 100 cm long, a reservoir 250 ml, a meter scale mounted on a stand and rubber tubing. | |
| 30 | Assorted screw driver cum | Good Quality | |
| 31 | assorted pliers | Good Quality | |
| 32 | Glass slab | Rectangular glass slab. Dimensions: 75x50*12mm. | |
| 33 | Right angle prism | Right angle prism with a cross section of 90°45°45° | |
| 34 | Spherometer | Brass disc and scale with stainless steel. Least count 0.1mm | |
| 35 | Micro ammeter | Dc-0-250μA | |
| 36 | Milli ammeter | DC 0-15mA. | |
| 37 | Voltmeters | Dc 0-10V | |
| 38 | first aid box | contains all necessary items. Contents are: cotton crepe bandage, cotton wool, bandage, surgical tape, Dettol, clinical thermometer, scisssors, burnol,cipladine ointment, band-aid. | |
| 39 | Battery Eliminator | curent:2A, Voltage: 0-12 V. | |
| 40 | Ammeter | DC 0-3 A | |

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| 41 | Surface Tension Apparatus/ Rising Table Apparatus. | Rising Table apparatus consists of metal frame having four capillary tubes of 10cm. Long and different internal diameter ares clamped with the help of small metal brackets. The 9mm. rod is also attached to metal plate, so that complete clamp can be held in any stand for determining the surface tension of liquid by capillary rise method. Its having a cast aluminium 4" dia table with adjustable stand. Maximum height capacity 12". | |
|----|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 42 | Wooden Sonometer (Teak wood Brass fitted) | Sonometer (Teak Wood Brass fitted) Comprising a teak wood resonance box 1140×125×100 mm length × width × height with meter scales one meter long subdivided in millimeters. One each brass and steel wires of S.W.G. 26 and 24 respectively, attached to a fixed bridge and tensioned by fine adjustment pegs: two moveable bridges, pulley and fixed screw to enable a third wire to be fixed for tensioning by weights. Wooden resonance box is made from superior quality teak wood and all metal parts are of brass. | |
| 43 | Deflection Magnetometer | One meter long single piece wooden nicely polished base with embedded two half meter scale reading from the centre of compass box i.e. zero at centre of both the scales. Measure the magnetization of a magnetic material like a ferromagnet. Used to measure the strength and, in some cases, the direction of the magnetic field at a point in space. | |
| 44 | Magnetic compass in an aluminium case | Dia approx. 12mm, Type: both side transparent. | |
| 45 | Commutator | Two way dial type, with four metallic terminals mounted on circular plastic base 6cm dia. | |
| 46 | Meter Bridge | consists of a long wire with a uniform cross- sectional area. It has two gaps formed using thick metal strips to make the Wheatstone's bridge. | |



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| 47 | DPDT Switch | 6 metallic terminal in two rows mounted on rectangular base | |
|----|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 48 | Diode | IN 4001, | |
| 49 | | IN 4002, | |
| 50 | | 6A4 MIC | |
| | | | |
| 51 | Optical Bench | The optical bench is a long steel pipe with a linear scale applied to it. It consists of holders for light sources, lenses and screens are placed on the apparatus so that image formation can be observed. An object is put on one side and corresponding | |
| | | image distance can be measured. | |
| 52 | Parallelogram Apparatus | Parallelogram apparatus is used in measuring forces acting on a single point. It consists of a black board of around 650x500mm with 2 aluminium pulleys clamped at the top. A spool of thread passes through these pulleys. Three hangers are connected to the spool and carry different slotted weights. | |
| 53 | Spring constant apparatus | Spring Constant Apparatus is used to measure force by using Hook's law. It consists of a Retort stand on which a spring is clamped. The other end of the spring has a hook on which variable slotted weight of 100gm, 200gm, 300gm, 400gm and 500gm are attached. A vertically placed ruler then measures the extension of the spring. | |
| 54 | Calorimeter copper with wooden box and stirrer | Made of copper 90 x 80 mm dia. Resting on a felt pad inside wooden box with sliding cover, provided with Thermometer holder with stirrer. | |
| | Consumable items. | | |



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| 1 | Crooke's Radiometer/light mill. | Consists of an airtight glass bulb containing a partial vacuum, with a set of vanes which are mounted on a spindle inside. The vanes rotate when exposed to light, with faster rotation for more intense light, providing a quantitative measurement of electromagnetic radiation intensity.good quality. | |
|----|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 2 | concave mirror | focal length 15 cm | |
| 3 | concave mirror | focal length 20 cm | |
| 4 | concave mirror | focal length 25 cm | |
| 5 | convex mirror | focal length 15cm | |
| 6 | convex mirror | focal length 12cm | |
| 7 | convex lens | focal length 10cm | |
| 8 | convex lens | focal length 10cm | |
| 9 | concave lens | focal length 15cm | |
| 10 | concave lens | focal length 20cm | |
| 11 | Spiral spring | The experiment involves measuring the extension of a spiral spring under different loads and using the results to calculate the spring constant. | |
| 12 | Torch bulb holder | | |
| 13 | Meter scale | 50cm hard wood. | |
| 14 | Meter scale | 100cm hard wood. | |