

**Physiology**

<b>SR. No.</b>	<b>Name Of Item</b>	<b>Specification</b>	<b>No. Required</b>
1	Sherrington Starling kymograph (electrically driven)	<b>Sherrington Starling kymograph (electrically driven)</b> Should run on electric motor, Speed should be adjustable with the minimum 2.5 mm/sec to maximum 640 mm/sec, Shaft with the groove on one side and screw lift at the top, Gear for adjusting the speed, Clutch to change the gear, Contact button with the striker or contact arms, Drum 15 x 15 cm, Levelling screw.	2
2	Myograph stand	<b>Myograph stand</b> For the study of the velocity and intensity of muscular contraction	2
3	Inductorium	<b>Induction coil</b> Fixed primary coil two end connected to two terminals on the top of the vertical platform sliding secondary coil with pointer at base Two terminals of secondary coil Base may be of wood or heavy metallic bar with scale Electromagnet with central brass pillar with screw Tall brass pillar bearing the Neef's hammers. Tall brass pillar with terminal at base The upper make and break screw planted on metal base Hammer strip attached to tall brass pillar	2
4	Simple key	simple key	2
5	Short circuiting key	short circulating key	2
6	Pohl's commutator	<b>pohl's commutator</b> Vulcanite base With rocking metallic cradle Six cup like depression filled with mercury Six terminal attached to cups Two narrow copper strips connecting the diagonally opposite corner cup	2
7	Vibrating interrupter	<b>Vibrating interrupter</b> Clamping plate Thumb screw Vibration scale Mercury cup Base board	2

8	Muscle trough	<p><b>Muscle trough</b>  Made of non conductive material  Can be mounted on stand  Bottom with two holes closed with corks one for fixing tissue other for drawing fluid with rubber tube and clamp  Sliding strip or socket with lever mounted on it  Two screw to fix copper wire and two electrode</p>	2
9	Muscle lever	Muscle lever Digital	2
10	Muscle grip of femur clamp	Muscle grip of femur clamp	2
11	Hook and Weight set	Hook and weight set	2
12	Heart lever (simple &Starling)	<p><b>Heart lever (simple &amp;Starling)</b>  A holder and screw to fix the lever on a stand  Two bars at right angle to each other  Horizontal with socket to which lever is attached vertical bar to hold spring  The other end of spring is attached to lever  Arrangement to change tension in spring</p>	2
13	Frog board for dissection	<p><b>Frog board for dissection</b>  Heavy base  Central rod  Board, lever and electromagnet fixed on rod</p>	2
14	Enamel tray	Enamel tray	2
15	Frog board cork lined with boss head	Frog board cork lined with boss head	2
16	Low voltage unit for tapping 2 and 4 volts for stimulation	Low voltage unit for tapping 2 and 4 volts for stimulation	2
17	Electromagnetic time marker	<p><b>Electromagnetic time marker</b>  Coil wound round soft iron bar  Coil connected to screw  Soft iron plate with spring  Tension of screw can be regulated by screw  Writing lever attached to plate  Bar and holder to fix the instrument on stand</p>	2
18	Tuning fork time marker 100/sec	<p><b>Tuning fork, time marker, 100/sec</b>  Tuning fork, time marker, 100/sec</p>	2

19	Electrodes	<b>Electrodes</b> Copper wire placed in holder made of non conductive material (cork, Plastic ect) With screw Shielded electrode two wire parallel to each other in layer of non conductive material Polarizable or non Polarizable electrode	2
20	X-blocks	<b>X-blocks</b> X-blocks- Standard, Open Sided with Stand	2
21	Spirit lamps	<b>Spirit lamps</b> Brass sheet die pressed, with woven wick in metal holder, screw Capacity 100 ml	2
22	Marey's tambour	<b>Mary's tambour</b> Mary's Tambour Traditional (5cm to 10cm diameter)	2
23	Microscopes, oil immersion	<b>Microscope for Students LED binocular with scanner, inbuilt battery Light source</b> Light source: white X-LED with light intensity controler Power supply: Input 110/240 Vac, 50/60 Hz; Observation modes 1. Bright field. Focusing 1. Coaxial coarse and fine focusing mechanism with Movable condenser, Co axial Mechanical stage with four Objective and oil Immertion	58
24	Demonstration eye piece	<b>Demonstration eye piece:</b> 10x and 15x magnification with pointer	3
25	Double demonstration eye piece	<b>Double Demonstration eye piece</b> Double Demonstration eye piece For simultaneous viewing with adjustable pointer and eye piece, detachable and rotatable, moves in all direction eye pieces on extension tube can be focused independently.	3
26	Stage incubator	<b>Stage Incubator -</b> Temperature range should be 3°C above room temperature to 50°C Temperature control accuracy as follows: ±0.3°C (Chamber temperature feedback) ±0.2°C (Specimen temperature feedback) Electric Heating Technology, Chamber temperature feedback and Specimen temperature feedback CO2 range should be 0 to 100%	1

27	Westergren's pipette for E.S.R. on stand (with space pipette)	<b>Wastergen's Pipettes for E.S.R. On Stand (with space pipettes)(Optional)</b> Wastergen's Pipettes for E.S.R. on stand (with space pipettes)	20
28	Wintrobe's pipette for ESR and PCV with stand	<b>Wintrobe Tube for ESR and PCV with stand:</b> It is a heavy cylindrical tube of uniform bore with flat bottom Graduated on both side form above downward and form upward form lower end Metal stand which can hold 6 tubes With pastures pipette long capillary pipette above 110mm long fitted with rubber teat	20
29	Perimeter Pristely Smith S/LP.984 B & T	<b>PRIESTLEY SMITH S/LP 984 B &amp; T -PERIMETER PRIESTLEY SMITH MODEL</b> An instrument for accurate charting of the field of vision., Consists of: A vertical stand on which a metallic arc is pivoted., It has a circular black disc to read the meridian in which there is an arc in shape of a semicircle with radius 330 mm., The apparatus comprises of a calibrated arc, revolving chart holder, It can rotate in any direction and fix at any position with a tightening screw. The arc is graduated from 0° to 90° with a movable test object., . At the back of the arc arrangement is provided for fixing of chart which has concentric circles corresponding to the degrees of arc	10
30	Hemoglobin-meter Sahli's or Hellige (with spaces)	<b>Haemoglobinometer, Sahil</b> The Haemoglobinometer Sahli's type, should be square tube type and the kit should consist of the following:- Comparator Holder – should be black in colour and the windows should have the following dimensions :- Height : 3 cms (Minimum) Width: 0.5. cms (Minimum)., Square Hb Tube graduated on both sides for measurement of haemoglobin in percentage and gram % 20 MicolitreHb – Pipette., Amber coloured acid vial ., Glass Stirrer ., Dropper with Teat ., Cleaning Brush	50
31	Hemocytometer	<b>Haemocytometer (ROHEM New Improved Neubauer's Chamber with RBC and WBC Pippets)</b> Thick glass slide with central depressed plat form separated on either slide form remain platform by deep moats. Level of this platform exactly 0.1mm lower than the general surface of slide. Depressed platform is ruled in squares central depressed platform is divided in to two parts by a length wise moat and from surrounds slide by two breadth wise moats. 16 square large block is demarcated from its neighbor by an extra interrupted line Central large square divided in to 25 square.	50

32	Sphygmomanometer (digital) (Mercury based instruments to be replaced with suitable alternatives)	<b>Sphygmomanometer</b> Sphygmomanometer with digital manometer and armlet rubber bag or Riva Rocci cuff; Air pump; and Aneroid manometer.	50
33	Stethoscopes	<b>Stethoscopes</b>	50
34	Stethoscopes, demonstration with multiple ear pieces	<b>Stethoscopes, demonstration with multiple ear pieces</b>	2
35	Polygraphs	<b>Polygraph Machine for Research Lab</b> Digital Polygraph systems to examine Physiological parameters • 8 Channel data acquisition hardware & software with a recording range 2 mV to 10V. Utilise for study of Heart Sound, ECG/EEG/EMG/EOG, BP, Reaction Time, GSR, Respiratory Studies, Heart Rate Variability, should be supplied with all necessary transducers pulse, respiration, temperature, Phono cardiogram, force & volume for Amphibian Experiments. 32 Channel EEG acquisition, Nerve Conduction studies: Motor, Sensory, F wave N Reflex, Blink Reflex etc.. Audiometry, Visual and somatosensory Evoked Potential. - Spirometry Forced Vital Capacity (FVC), Slow Vital Capacity (SVC), Maximum Voluntary Ventilation	1
36	Venous pressure apparatus	Standalone recorder to monitor & record the data on single channel colored Monitor. System should have facility to store the recording and review the recorded data on any computer. A software should be provided free of cost along with the system to review and printing the recorded data from PC whenever required. supplied with Force Transducer, Isotonic Transducer & Volume transducer.	1
37	Spirometer, ordinary	<b>Spirometer Simple</b> Consist of metallic vessel inverted on jacket of water A wide air passage going through center of jacket connected to tube with mouth piece, Other end is connected to mouth piece by corrugated impervious tubing Counter weight attached to chain running over pulley balancing weight of bell Capacity 6 Liters. Pointer or scale marked on wheel fixed over pulley.	15

38	Gas analysis apparatus, Halden's student type	Gas analysis apparatus, Halden's student type manual Machine	1
39	Van Slyke's apparatus manometric	Van Slyke's apparatus manometric Apparatus for analyzing gases in microlitre samples of blood or other solutions Based on vacuum extraction principle Should be accurate and reproducible	1
40	Gas analyser automatic for CO <sub>2</sub> , O <sub>2</sub> , N <sub>2</sub>	<b>Automatic Gas Analysis Automatic CO<sub>2</sub>, O<sub>2</sub>. (Digital Gas Analyser)</b> The system measures O <sub>2</sub> , CO <sub>2</sub> , RQ, VE, spirometry/ flow volume with other physiological parameters etc. • The system is interfaced with computer	1
41	Douglas bag, complete	Douglas bag Made up of impervious flexible sheet Which can be placed on back of person	1
42	Basal metabolism apparatus	<b>BENEDICT ROTH RECORDING SPIROMETER [BMR APPRATUS]:</b> For determination of basal metabolism, by measurement of oxygen consumption. The 6 liter capacity float is fitted with chain compensated counter balance. A thermometer is fitted on the float movements of the float are recorded by means of a gravity writing ink pen, sampling cock is provided at the mouth-piece to connect the subject to the spirometer or the atmosphere.	1
43	Mosso's Ergograph	<b>Mosso's Ergograph</b> Mosso's ergograph with metronome and weights. Ergograph containing the advantageous features of both bubios and mossosergogrpah with weight set. Horizontal Electric Kymograph with recording unit having automatic ratchet, recording systems follows the Du - bois design and armrest, Finger holder and straps. Follows Mosse's design complete with 1 set of 5 kg weight.	8
44	Clinical thermometer (Mercury based instruments to be replaced with suitable alternatives)	Clinical Thermometer (Digital type)	40
45	Compass aesthesiometer	<b>Compass Aesthesiometer</b> Two limb of compass with graduated arc Limb is bifurcated to possess two point one blunt for the touch and the other sharp for pain	20

46	Thermo-aesthesiometer	<b>Temperature Aesthesiometer</b> Metal tube with conical tip and two limbs	20
47	Algometer	<b>Algometer</b> Broad blunt knob attached to spring which can be pressed With scale to measure pressure ISO certifide Item	15
48	Apparatus for passive movemen	<b>Apparatus for passive movement</b> CPM is used to treat joints of the lower limb after an injury, disease or following surgery. sufficient range of motion. To prevent stiffening , the jouint have to be moved continuously which results in the following. Compact and elegant construction Electronic controls enable all adjustment of angle to be made on the front panel. Smooth and silent movement Digital timer with alarm	1
49	Knee hammer	<b>Knee hammer</b> Knee hammer	30
50	Stethograph	<b>Stethograph</b> 60cm long and 2cms diameter corrugated and impervious tube made of canvas with rubber one end closed other end open Metal chain at both ends one chain with hook Open end connected with pressure tube to tambour	15
51	Bicycle Ergometer	<b>Bicycle ergometer</b> Bicycle ergometer., Adjustments (Height): 83cm – 110cm Saddle: 68cm – 108mm., Handle bars: free rotation Accuracy of load: 2% or 3 Watt., Input/output Inputs: Analogue control., Start signal., Heart rate., Blood pressure s., Blood pressure ,ECG Alarm., Outputs: work load Pedaling Speed ., Step Marker., Weight: approx 46Kg	1
52	Olfactometer	<b>Olfactometer</b> olfactometer (OLFM), complete; 12”X12”X1”, 4 – port/4choice arena olfactometer w/removable lid. Main body and all inlet and outlet ports made from solid UHMW – Poly ethylene (PE) with 3/8” thick clear plexighas removable lid. System includes an insect inlet adapter (Note: specify inset size at time of order) and all (4) glass, 2 piece olfactometer to be converted to a two choice system by blocking off half of the arena area. Olfactometer is supported by (4) – 6” removable legs.	1

53	Ophthalmoscope	<p><b>Ophthalmoscope</b>  Consist of concave mirror with a hole in centre, Marton ophthalmoscope three mirror 2 concave mirror 1 large and other is small., Plane mirror for retiniscopy Three mirror attached that central hole come in same place Series of lenses  Series of hole arranged to measure diameter of pupil  Source light of light on back side</p>	1
54	Schematic eye	Schematic eye	1
55	Phakoscope	<p><b>Phakoscope</b>  Consist of triangular box the base of which is about 35cm long and other two sides of 18cm each Height of the box is about 10cm  Painted black inside Mounted on stand  Three angles of box are truncated and provided with holes of adequate size The truncation leave a distance of about 10cm between the apex and the centre of the base  At one of truncated angle two prism are placed</p>	1
56	Perimeter with charts (Lister's)	<p><b>Perimeter with charts</b>  The arc should be graduated from 0° to 90° with a movable test object. At the back of the arc arrangement should be provided for fixing of chart which has concentric circles corresponding to the degrees of arc.  Adjustable chin rest.  The above mentioned should be fitted over a sturdy base with receptacle for keeping charts.  Accessories:  Different sized (2mm &amp; 5mm), shaped (round &amp; square) and coloured (five different) objects.  Metallic graduated scale with a movable pin punch point to mark on perimeter</p>	2
57	Color perception lantern Edridge green	<p><b>Colour Perception Lantern Edridge Green</b>  Metallic instrument It stimulate various natural condition For different colour , Rain , Mist , Fog , Dust  Two red, two green, a yellow, a blue and a purple colour mounted on three disc</p>	1
58	Maddox rod	<p><b>Maddox rod</b>  Maddox rod for screen test;  - Maddox rod lens; red/white/green rim and amp;  handle material: copper handle; length: 70mm,</p>	1
59	Newtons color wheel	<p><b>Newtons color wheel</b>  Coloured (different colour) disc mounted on stand  With a handle or disc which can be rotated with electricity</p>	1



60	Tuning fork to test hearing 32-10000 cps (sets-100, 256, 512 hz)	Tuning fork to test hearing 32-10000 cps (sets-100, 256, 512 hz)	15
61	Dynamometer	<p><b>Dynamometer</b> Especially suitable for use in rehabilitation centers/physiology labs; Real time mode: immediately shows the patients current strength Peak/Max Mode: shows the maximum strength of a patient's grip Average Mode: calculates the average strength from two grips Counting mode: counts the numbers of presses which exceed a previously defined strength limit; Integrated AUTO – OFF function after 1 minute to preserve the batteries; As part of a rehabilitation program, this permits medical staff to monitor the fitness of the patients hands and carry out controlled training exchangeable springs facilitate fast switching of the capacity</p>	1
62	Otorhinolaryngoscope	Otorhinolaryngoscope Otorhinolaryngoscope - ENT Set	1
63	Sterilizer electrical 18"	<b>steriliser Electric</b> Sterilizer Electric, (Medium Size) 300X150X100mm	1
64	Instrument trolley	Instrument trolley Instrument Trolley of stainless steel with three shelves with guard rails on three side, -With swivel castors Small:- 66x44x87cm (LxWxH) Large:- 91x45x82cm (LxWxH)	1
65	Stop watch	<b>Stop watches</b> Stop watches reading at 1/5 second with LED/LCD display reading at 1/5 display	15
66	Multi channel Physiograph, 3 channels, complete with accessories (Digital TFT Screen)	<p><b>Physiograph 3 Channels Complete With Accessories</b> standalone recorder to monitor &amp; record the data on three channel System should have built in stimulator. System should have facility to store the recording and review the recorded data on any computer. with Force Transducer, Isotonic Transducer &amp; Volume transducer. • For human experiment, transducers/ electrodes to perform following tests i.e ECG, EEG, EMG, GSR, Pulse, Respiration, Hand dynamometer, Phonocardiogram &amp; Temperature should be supplied</p>	2

67	Student physiograph, (single channel) with accessories (Digital TFT Screen)	<p><b>Physiograph Single Channel With Accessories</b> standalone recorder to monitor &amp; record the data System should have built in stimulator. , System should have facility to store the recording and review the recorded data on any computer.</p> <ul style="list-style-type: none"> <li>• A software should be provided free of cost along with the system to review and printing the recorded data from PC whenever required. supplied with Force Transducer, Isotonic Transducer &amp; Volume transducer.</li> </ul> <p>For human experiment, transducers/ electrodes to perform following tests i.e ECG,EEG, EMG,GSR, Pulse, Respiration, etc.</p>	6
68	Centrifuge, high speed with technometer	<p><b>CENTRIFUGE CLINICAL FOR 12 TUBESS</b> Technical Specifications Tube Capacity :No.12 or more :Size 5 – 15 ml Should have a digital timer, Body should be made of strong fabricated &amp; corrosion resistant steel, Control panel – for start/stop switch, dynamic brakes, step less speed regulator with zero start switch &amp; speed indicator with timer and protective fuses. Door interlock, Maintenance-free brushless drive motor with exact speed preselection and display. Speed range 100 to 6000 rpm and above, accuracy 1 rpm. RPM : Up to 4000-6000 Power Supply Power input to be 220-240VAC, 50Hz</p>	1
69	Colorimeter, photoelectric	<p><b>Colorimeters photoelectric Kanad Vidhut</b> Colorimeters · Filter photo Colorimeter Digital Photo. · Colorimeter with 8 filters, mains operated.</p>	1
70	pH meter electric	<p><b>pH Meter</b> Should be microprocessor based for fast and accurate pH measurement Should have 3 point calibration with auto buffer recognition, pH range should be 0-14, Refillable triode 3 in 1 epoxy body combination pH electrode Accuracy up to 0.01pH</p>	1
71	Refrigerator	Refrigerator (150-200 Litr) (LG/Godrej/Wirlpool)	1

72	Oxygen cylinder with trolley	<p><b>OXYGEN CYLINDER “B” TYPE</b>  A container designed as a refillable cylinder used to hold compressed medical oxygen (O<sub>2</sub>) under safe conditions at high pressure (e.g., 50 - 200 Bar).  Clinical purpose  A container designed as a refillable cylinder used to hold compressed medical oxygen (O<sub>2</sub>) under safe conditions at high pressure; O<sub>2</sub> is used as an essential life support gas, for anaesthesia, and for therapeutic purposes. Flowmeter for controlling unlow of oxygen.  Mobility, portability - yes; on its trolley; for Ambulances - to be supplied bare without trolley.</p>	1
73	CO <sub>2</sub> cylinder with trolley	CO <sub>2</sub> Cylinder with Trolley	1
74	Electronic stimulator	<p><b>Electronic stimulator</b>  Channel: Dual, isolated between channels Pulse intensity: Adjustable 0-80 mA peak into 500 Ω load each channel, constant current Pulse Rate: 1Hz-160 Hz (adjustable), 1Hz/step (1-20 Hz), 5Hz/step (20-160 Hz) Pulse Width: 50 μs – 260 μs (adjustable), 10 μs / step, Patient Compliance meter: Shows the treatment times in hours.  Timer: 15, 30, 60 minutes and continuous mode</p>	1
75	Water distillation steel with spare heating elements	<p><b>Water Distillation Apparatus still</b>  Water Distillation Apparatus still Electric Automatic sensors made available to keep the system in standby mode,  Cooling water input for condemnation: 2ltrs/min X 2 inputs ,Water recycling available, no wastage of water  Power: 230v, 50/60Hz, Single phase, 2KW approximately  Water distillation still, with spare heating elements</p>	1
76	All glass distillation apparatus double stage	<p><b>ALL GLASS DISTILLATION APPARATUS</b>  Technical specifications:  The glassware should be made of high quality borosilicate glass to withstand high heat.Apparatus capacity should be of 4 litres/Hr.  Should be double stage. metallic stand and other accessories.  Standards heating elements of 2.5-3KW to be used.  An automatic cut off device should be attached.  Borosilicate Boiler with built in water leveller.  Output water should be pyrogen-free with conductivity less than 1 micro siemen, ph 6.9-7, distillate temp 65-75 degC.  Automatic cut off device or safety control module.  Power input to be 220-240 VAC, 50 Hz.</p>	1
77	Voltage stabilizer	Voltage Stabilizer	1

78	Thermometers, balances, microslides and glassware	<b>Microslides and glassware</b> Glass wares of following capacity as required by standard lab. All items should be made of Heat resistant Borosilicate Glass	5
79	Digital Physiograph (4 Channel)	<b>Physiograph 4 Channels Complete With Accessories )</b> standalone recorder to monitor & record the data System is having built in stimulator. System should have facility to store the recording and review the recorded data . A software should be provided free of cost along with the system to review and printing the recorded data from PC whenever required. supplied with Force Transducer, Isotonic Transducer & Volume transducer. For human experiment, transducers/ electrodes to perform following tests i.e ECG, EEG, EMG, GSR, Pulse, Respiration, etc.	1
80	Models and Charts	<b>NAME OF CHART CHARTS ON Physiology</b> Made in Plaster of Parise material it will be very sturdy.	45
81	ECG Machine	<b>ECG Machine (Three channel ECG Machine with Interpretation &amp; thermal printer)</b>	2
82	Multimedia Projector with screen	<b>Multimedia Projector with screen</b> Size:- portable with Remote control USB & HDMI input Type:-Optical Zoom / Focus(Automatic)., Focal Length:- 16.9 - 20.28 mm., Zoom- Up to 5x or more., Lamp Life (Normal):- 5,000 hours Screen should be white in colour and good quality with automatic movement with remote control screen size of 5x6 Feet	2

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