

**Bidding document for-**

**Group A : Supply, Installation & Commissioning of Mobile Ophthalmic Unit**

**Group B : Supply, Installation & Commissioning of Instruments in Mobile Ophthalmic Unit**

**Group C : Supply, Installation & Commissioning of Biomedical Equip. for Pathology**

**Group D : Supply, Installation & Commissioning of Biomedical Equip. for Pharmacology**

**Group E : Supply, Installation & Commissioning of Biomedical Equip. for Anatomy**

**Group F : Supply, Installation & Commissioning of Biomedical Equip. for Biochemistry**

**Group G : Supply, Installation & Commissioning of Biomedical Equip. PMR**

**Group H : Supply, Installation & Commissioning of Biomedical Equip. Physiotherapy**

**BIDDING DOCUMENT**

**TENDER NOTICE No: 03/2020- 2021/Bio-Medical Equipment/IGIMS/Store**



**Supply, Installation & Commissioning of Bio-Medical Equipment's / Instruments**

**TENDER NOTICE No: 03/2020- 2021/Bio-Medical Equipment/IGIMS/Store**

Issued to:

Cost of Document: Rs.2500/-

Paid By:           Cash:           Receipt No.:

Demand Draft:    No.:

Issuing Bank:

**(Authorized Signatory)**

**INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,  
SHEIKHPURA, PATNA - 800014.**

**INDEX**

<b>Sr. No.</b>	<b>Description</b>	<b>Page No.</b>
01.	<b>CHECK LIST</b>	<b>4-6</b>
02.	<b>ELIGIBILITY CRITERIA</b>	<b>7</b>
03.	<b>INSTRUCTION TO BIDDER</b>	<b>8-14</b>
04.	<b>CONDITION OF THE CONTRACT</b>	<b>15-20</b>
05.	<b>SCHEDULE OF THE REQUIREMENT</b>	<b>21</b>
06.	<b>SPECIFICATION AND ALLIED TECHNICAL DETAILS</b>	<b>29-83</b>

**IMPORTANT DATES**

<b>Last date for Purchase of Bidding Document</b>	Can be downloaded from Institute website
<b>Pre-bid meeting</b>	16.06.2020 at 03.00 P.M. in Conference Hall (New Administrative Building) IGIMS, Patna.
<b>Last date for submission of completed bidding document</b>	30.06.2020 up to 4.00 PM. by registered/speed post/ Courier only
<b>Date of opening of technical bid</b>	01.07.2020 at 3.00 P.M. in Conference Hall (New Administrative Building) IGIMS, Patna.
<b>Date of demonstration of equipment</b>	To be informed to the qualified bidders qualifying after opening of technical bids.

<b>SL. No</b>	<b>Group</b>	<b>Name of Equipment</b>	<b>Earnest money to be Deposited.</b>
<b>01.</b>	<b>A:</b> <b>Mobile Ophthalmic Unit</b>	<b>1. Mobile Ophthalmic Unit (Vehicle + Fabrication)</b>	<b>1 Lakh (A+ B)</b>
<b>02.</b>	<b>B:</b> <b>Instruments in Mobile Ophthalmic Unit</b>	1.Non Mydriatic Funds Camera	
		2.Photo Slit Lamp	
		3.Auto Refractometer with Keratometer	
		4. Direct ophthalmoscope	
		5. Indirect Ophthalmoscope Charger	
		6. Trail Lenses set with trail frame	
		7. Vision chart & vision drum Paed.	
		8. Non Contract Tonometer	
		9. UPS 2 KVA	
		10. Generator of Adequate Capacity :5 KVA	
<b>03.</b>	<b>C:</b> <b>Pathology</b>	1.Centrifuge	<b>5000/-</b>
		2.Automated Urine Sediment Analyser	<b>25000/-</b>
		3.Decaheaded Microscope	<b>20000/-</b>
		4.Triheaded Microscope	<b>15000/-</b>
		5.Pentaheaded Microscope	<b>20000/-</b>
		6.Histopathology Grossing Workstation	<b>10000/-</b>
		7.Automated Cover Slipper	<b>5000/-</b>
		8. Microwave	<b>1000/-</b>
		9.Autoclave	<b>2000/-</b>
		10.Incubator	<b>5000/-</b>
		11.Hot Air Oven	<b>1000/-</b>
		12.Labrotary Electronics Balance	<b>1000/-</b>

		13.Ph Meter	1000/-
		14.Water Bath	1000/-
		15.Projection Microscope	5000/-
		16.Binocular Microscope	2000/-
		17.Emnbedding Station	10000/-
		18.Automatic tissue processor	20000/-
		19.Automated Motorized Rotary Microtome	20000/-
		20.Fully Automated Equip. for Liquid based Cytology (LBC)	10000/-
		21.Cryostst 22.HPLC	25000/-
		22.HPLC	100000/-
		23.Storage Cabinet for Specimens	1000/-
		24.Histopathology autostainer	4000/-
		25.Bone Decalcifier	10000/-
		26.Thermal Cycler(PCR)	10000/-
		27.Electrophoresis unit with western blotting apparatus	5000/-
		28.Spectrophotometer	2000/-
		29.Incubator/Shaker	2000/-
		30.Deep Freezer -80°C	2000/-
		31. Autostainer for IHC	25000/-
<b>04.</b>	<b>D.</b>	1.Non Invasive Blood Pressure machine	10000/-
	<b>Pharmacology</b>	2. Deep Freezer (-86°C)	5000/-
		3. Double bean UV-visible Spectroscopy	10000/-
		4.ELISA Reader	10000/-
		5. Semi Auto analyser	10000/-
		6. PCR	10000/-
		7. UV transilluminator	5000/-
		8.Centrifuge Machine	2000/-
		9. Digital Analytical Weighing Machine	1000/-
		10.Refrigerator	1000/-

<b>05.</b>	<b>E: Anatomy</b>	1.Co2 Incubator	<b>10000/-</b>
		2. Biological Safety Cabinet	<b>10000/-</b>
		3.Cyclomixture	<b>10000/-</b>
		4. Weighing Machine (Electronic Analytical and Precision Balance )(4in No.)	<b>10000/-</b>
		5. Fluorescence microscope with camera	<b>50000/-</b>
<b>06.</b>	<b>F: Biochemistry</b>	1.Hot Plate with magnetic stirrer	<b>1000/-</b>
		2. Orbital shaker with rocking action	<b>1000/-</b>
		3. Gel Documentation System	<b>20000/-</b>
		4. Water Bath	<b>1000/-</b>
		5.pH meter	<b>1000/-</b>
		6. Micropipette	<b>10000/-</b>
		7. Laminar Flow Hood	<b>10000/-</b>
		8. Conventional PCR Light Thermocycler (Gradient )	<b>10000/-</b>
		9. Image capture and analysis Software automated system for Karyotyping and FISH	<b>50000/-</b>
		10. Dry block incubator	<b>1000/-</b>
<b>07.</b>	<b>G: PMR</b>	1.CPM for Upper Limb	<b>1000/-</b>
		2. CPM for lower limb	<b>10000/-</b>
		3. Four Station Gym Equipment's	<b>1000/-</b>
		4. PRP Centrifuge Machine	<b>10000/-</b>
		5. Dynamic Stair Trainer	<b>1000/-</b>
		6. Examination Table (Hydraulic + height Adjustable	<b>10000/-</b>
		7. Ultrasound and Electrotherapy Combination Therapy Unit	<b>10000/-</b>
		8. Treadmill	<b>10000/-</b>
		9. Unweighing support system For gait-training	<b>10000/-</b>
		10. Microwave Diathermy and Traction Combination Unit	<b>20000/-</b>
		11. Nerve Stimulator	<b>10000/-</b>
		12. Tilt Table motorized	<b>10000/-</b>

		13. Electromyography and NCV System	<b>10000/-</b>
		14. OT Table	<b>10000/-</b>
		15. OT Light	<b>1000/-</b>
		16. Patient Semifowler Beds for Day Care	<b>1000/-</b>
		17. Quadriceps & Hamstring Curl Machine	<b>1000/-</b>
		18. Upper & Lower Body Ergometers	<b>10000/-</b>
		19. Exercise Benches	<b>1000/-</b>
		20. Parellel Bar with Mirror	<b>1000/-</b>
		21. Shoulder wheel	<b>1000/-</b>
		22. Static Exercise Cycle	<b>1000/-</b>
		23. Trampoline	<b>1000/-</b>
		24. Examination Couch	<b>1000/-</b>
<b>08.</b>	<b>H: Physiotherapy</b>	1.CPM Unit for Upper Limb	<b>2000/-</b>
		2.CPM Unit for Lower Limb	<b>2000/-</b>
		3. Thera Band station/Rehab and Wellness Station	<b>2000/-</b>
		4. Multi Gym Unit	<b>10000/-</b>
		5.Multi-Activities Work Station	<b>2000/-</b>
		6. Partial Weightbearing System / Un-weight Mobility trainer (with Treadmill)	<b>10000/-</b>
		7. Bolsters	<b>1000/-</b>
		8. Swiss Ball	<b>1000/-</b>
		9. Shock wave Therapy Unit	<b>20000/-</b>
		10. Laser Therapy Unit	<b>10000/-</b>
		11. EMG Biofeedback System	<b>10000/-</b>
		12.Moist Heat Therapy /Hydrocollator	<b>1000/-</b>
		13. Portable Combination Therapy	<b>2000/-</b>

**INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,**  
**SHEIKHPURA, PATNA -800014 (Bihar, India)**

Sr. No. of Tender: \_\_\_\_\_

FILE NO. : Tender No.: \_\_\_\_\_

Tender form issued in favour of: \_\_\_\_\_  
\_\_\_\_\_

Dear Sir,

1. I/We hereby submit our tender for the \_\_\_\_\_
2. I/We are enclosing herewith the Demand Draft No..... dated..... for Rs.       /-  
drawn in favour of **Director I.G.I.M.S. - Patna (payable at Patna)** towards **EMD / Bid Security.**  
  
**(EMD AND COST OF BIDDING DOCUMENTS MUST BE SUBMITTED IN SEPRATE ENVELOP. TENDERS NOT ACCOMPANIED WITH EMD / BIDSECURITY ALONGWITH THE TECHNO-COMMERCIAL BID SHALL BE SUMMARILY REJECTED).**
3. I/We have gone through all terms and conditions of the tender documents before submitting the same.
4. I/We hereby agree to all the terms and conditions, stipulated by the I.G.I.M.S. - Patna including delivery, warranty, penalty etc. Quotations for each group are being submitted under separate covers, and sheets and shall be considered on their face value.
5. I/We have noted that overwritten entries shall be deleted unless duly cut & rewritten and initialled.
6. Tenders are duly signed and stamped.(No thumb impression should be affixed)
7. I/We undertake to sign the contract/agreement, if required, within 15 (Fifteen days) from the date of issue of the letter of acceptance, failing which our/my EMD/Bid deposited may be forfeited and our/my name may be removed from the list of suppliers
8. **I/we have quoted the price in Indian Rupee only.**

Yours faithfully,

**(Signature of Bidder with full name and address)**

**CHECK LIST FOR TERMS AND CONDITIONS**A.: **To be filled by the bidder and submitted along with the Technical Bid.**

Sr. No.	Terms & Conditions as per Bidding Document	Page No.	Remarks
1.	<p><b>Status of Bidder:</b></p> <ul style="list-style-type: none"> <li>• Manufacturer or Authorized Agent of the Manufacturer</li> <li>• Whether Public Undertaking, Public Ltd., Private Ltd. Company or Proprietary Firm/partnership firm</li> <li>• (Please attach Notary certified <b>MANUFACTURER'S AUTHORISATION FORM</b> as per <b>FORMAT</b> placed at <b>Annexure - III</b>)</li> </ul>		
2.	<b>Power of Attorney as per Annexure - V</b> in favour of person to sign, submit and negotiate the bid.		
3.	Certificate towards market standing of minimum 05 years in the area of supply and or maintenance of bio-medical equipment's.		
4.	Certificate for sole ownership / partnership		
5.	Statement of financial standing from bankers		
6.	Statements of turnover per year for last three successive years duly certified by the Chartered Accountants.		
7.	<b>Notary certified User List</b> (List of Govt. /Semi Govt., Reputed Pvt. Hospital) where quoted model of the items has been supplied and installed.		
8.	<b>Notary certified Supply</b> order copy (Minimum 3nos. or more) issued by Govt./Semi Govt./Reputed Pvt. Institutions/organization for the quoted items. ( same model)		
9.	<b>Notary certified Performance certificate</b> of the same supplied machine (of quoted make and Model) issued by <b>Head of the dept. or Institution</b> after a minimum period of six months of installation		
10.	Prerequisite (if any) for installation of the Machine, if any, to be provided by the Institute.		
11.	Whether rates quoted are inclusive of all taxes or not.		
12.	Whether rates are quoted as per format mentioned in the Bidding Document or not.		
13.	Affidavit to the effect that the bidder is not blacklisted by any Govt. agency or have no pending case either Civil or Criminal against them.		
14.	Affidavit, to the effect that the bidder is not supplying the quoted item(s) to any other Govt. /Semi Govt. Organizations / Institutions / Hospitals at the rate lower than the rate quoted against this tender.		
15.	<b>Quality Assurance Certificate</b> like ISI, ISO-9002, IP/BP, CE, FDA (US) or any other (please specify)		
16.	<b>Bid Security</b> amount deposited is enclosed or not. If yes, please mention the details.		
17.	<b>Original Technical Catalogue</b> of the quoted model .		
18.	Certificate, to the effect that bidder will maintain the quoted item(s) during Warranty period of three years/ 5 years as mentioned against each item including all spares, accessories, consumables etc.,		



	(Please mention the name of the item / items with price, which are not supplied by the bidder free of cost with frequency of replacement)		
19.	Certificate, to the effect that bidder has quoted its rate for Comprehensive Annual Maintenance Contract inclusive of labour, spares, consumables, accessories etc. on per year basis for a further period of five/seven years after expiry of warranty period of five/three years in the <b>price bid</b> .  (Please mention the name of the item / items with price, which are not supplied by the bidder free of cost with frequency of replacement during Comprehensive Annual Maintenance Contract period in the price bid)		
20.	Acceptance of all terms / conditions towards <b>after sales / services</b> as mentioned in the bidding document.( Clause No- 13 of “ Instruction to Bidder “ & clause no- 3, 4 and 5 of Condition of contract.)		
21.	<b>Compliance Statement</b> with relation to the technical specification as mentioned in the bidding document duly supported by the original catalogue. The bidder must quote specification in the compliance column Mere writing” Complied shall not be accepted.		
22.	<b>Compliance Statement</b> with relation to the terms & conditions as mentioned in the document.		
23.	<b>PAN and copies of Income Tax Returns</b> for the last three years.		
24.	Duly attested copy of GST registration certificate.		

**B: To be filled by the Bidder and submitted along with Price Bid**

Sl. No.	Terms & Conditions as per Bidding Document	Page No.	Remarks
1.	<b>Item wise price in Indian Currency for the item(s)</b> as mentioned in the Bidding Document and as per format attached as <b>Annexure - I</b>		
2.	<b>Rate for Comprehensive Annual Maintenance Contract</b> as per terms & conditions mentioned in the Bidding Document and as per format attached as <b>Annexure - II</b>		

**Note:** If the above tender details are not mentioned and required documents are not attached at appropriate places, the offer of the bidder(s) shall be summarily rejected. Hence, bidder(s) are advised to go through the bidding document carefully and tender be prepared with all the required documents to avoid rejection of offer and price should be mentioned in Indian Rupees.

(Name of the Bidder with signature & seal)

## ELIGIBILITY CRITERIA

01	Manufacturers or their authorized dealers/Indian subsidiaries/direct importers having a place of business in any of the States of India are eligible to participate in this tender.	Mentioned Page no.
02	The bidder and manufacturer of the equipment offered should be in the business of the supply and installation of same / similar equipment for the last five calendar years.	
	<p>(a)The manufacturer should have completed at least 03( Three ) nos. installations of the quoted items in Govt. /Pvt. Institutions /Hospitals in India. The installations mentioned by the manufacturer in their offer must be functional and performance certificate for the same issued by the user concerned also be attached with the offer.</p> <p>(b) The bids quoted as the authorized representative of the manufacturer meeting the above criteria 02 (a) should have also supplied and installed at least 03( Three) nos. installations of the quoted items in Govt. /Pvt. Institutions/ Hospitals in India in last five years from the last date of submission of tender. The installations mentioned by the authorized representative in their offer must be functional and performance certificate for the same issued by the user concerned also be attached with the offer.</p>	
03	The Bidder should be public undertaking /Autonomous Body /Public Ltd./Pvt. Ltd. Company or proprietary firm /Partnership Firm and should be in medical equipment business since last five years in India. The Bidders having manufacturing facility in their name in India for the majority of the items offered by them shall be given preference.	
04	The Bidder (manufacturer or their authorized agent) should have had average annual financial turnover of Rs. 50 Lakh during the last three years ending s 31 <sup>st</sup> March 2018.	
05	Bidders who have the capability to attend repairs of these equipment within the time mentioned in this bidding document and who are willing to provide stand by equipment or replace the faulty equipment if the repair/down time extends beyond 72 hours from the time of reporting of the fault within the next 48 hours (total down time should not exceed 5 days in one instance). The bidders who have the capability to ensure the uptime mentioned in this document (Documentary proof shall be submitted on the after sales facilities and expertise of the bidder.)	
06	Bidders are not offering the equipment of a firm /company that has been blacklisted by Indira Gandhi Institute of Medical Sciences – Patna or blacklisted/debarred by any other State / Central Government's organization.	

**Note:**

- Notwithstanding anything stated above, the Institute reserves the right to assess the Bidder's capability and capacity to perform the contract satisfactorily before deciding on award of contract, should circumstances warrant such an assessment in the overall interest of the purchaser.
- The Institute reserves the right to ask for a free demonstration of the quoted equipment at a pre-determined place acceptable to the purchaser of technical acceptability as per the tender specification, before the opening of the price tender.

## **INSTRUCTION TO BIDDER**

### GENERAL INSTRUCTIONS TO BIDDERS

#### 1. **Tendering System**

The tenders/Bids are to be submitted in two Parts i.e. **Part - I & Part II.**

**PART - I titled as TECHNICAL BID** shall contain the complete technical specifications and details on the competency of the bidder and also the commercial bid package with terms and conditions of supply, warranty, after sales service etc. (Except Price Bid Form). Apart from the documents and signed copy of the purchased tender document, the necessary enclosures should be submitted in this technical bid. In short, the technical bid should contain all the necessary documents to prove the technical competency and capability of the bidders for supplying and installing a trouble free equipment meeting the quality standards and technical specification and the ability of the bidders for providing efficient after sales service to the satisfaction of the Tender Inviting Authority and the user institution.

#### **PART - II titled as PRICE BID**

2. The tender offers, duly filled, shall be submitted in sealed covers for **technical**. Such covers shall be super scribed as **“Tender No..... (here mention the tender no as specified) TECHNICAL BID for supply of ..... (here mention the name of the equipment**
3. Quantity of items may increase or decrease. Director, I.G.I.M.S. - Patna reserves the rights to purchase different sub items/ components of items from different bidders.  
  
**This rate Contract will be valid for Two year from date of 1<sup>st</sup> satisfactory installation and acceptance of the equipment. Repeat Supply Order will be placed as per requirement of the Institute of all the quoted and approved items. The rate contract may be further extended for period of one year as decided by Director, IGIMS-Patna.**
4. The “Bidding Document” along with terms and conditions, technical specification can be obtained from the office of the Store Officer, IGIMS, Patna on payment of Rs.2500/- ( Rs. Two thousand Five Hundred only) Non –refundable for each Group by demand draft favouring Director , IGIMS, Patna payable at Patna.
5. The “ Bidding Document” can also be downloaded from institute website [www.igims.org](http://www.igims.org). In case, downloaded bidding document is used, Bidder(s) have to submit the cost of the Tender Document along with the completed documents in the form of demand draft in favour of Director , IGIMS, Patna, payable at patna towards cost of the “ Tender documents” Bidder is required to attach separate DD for the same in a separate envelop super scribed with “ cost of bidding document” if the cost of tender document is not submitted by the bidder, his offer shall be outright rejected .
6. **Last date for submission of bidding document is 30/06/2020 up to 4.00PM by speed/Regd. post/ Courier only and technical bid will be opened on 01/07/2020 at 3.00 PM in Conference hall IGIMS, Patna**
  - a. EMD of the unsuccessful bidders will be returned to them at the earliest after expiry of final bid validity and latest on or before the 30<sup>th</sup> day after the award of the contract without any interest.

- b. EMD must be submitted in separate sealed envelope and endorsement of the same with DD number & date Bank Guarantee No. and its validity period be made with technical bids without amount stating that the same has been complied with price bid. If same is later found not enclosed tender will be cancelled for the party.
  - c. Non- submission of sufficient EMD along with the Technical Bid shall be one of the primary reasons for rejection of the offer in the first round.
  - d. Cheque, Cash payment, Money Order, Fixed deposit etc will not be accepted as EMD.
  - e. Public Sector Units within the State or State micro, small and medium enterprises registered with Govt. are exempted from remittance of EMD subject to submission of valid documents.
  - f. The EMD shall be in one of the following forms:
    - i. A demand draft in favour of Director, I.G.I.M.S. – Patna (payable at Patna);
    - OR
    - ii. A Bank Guarantee issued by a nationalized/ scheduled bank located in India, in the form prescribed in the tender document as Annexure- IV (valid up to one year from the date of technical bids opening) Bank Guarantee in any other format will not be acceptable and render the bid non-responsive.
    - iii. The successful Bidder's EMD will be discharged upon the Bidders signing the contract and furnishing the performance security. The EMD deposited in the form of DD of the successful Bidder can be adjusted towards the security deposit payable.
7. Bidder(s) should enclosed photocopy of Income tax & sales tax clearance certificate.
8. The Bidder's shall have to submit the following documents (Certified by Notary) in technical bid: -
- a. User List (List of Govt. / Semi Govt., Reputed Pvt. Hospital) where quoted model of the items has been supplied and installed.
  - b. Supply order (minimum 3 nos. Or more issued by govt./semi govt./reputed pvt.institution/organisation for quoted items ( same model)
  - c. Performance certificate of the same supplied machine (of quoted make and Model) issued by **Head of the depts. or Institution** after a minimum period of six months of installation.
  - d. Prerequisite (if any) for installation of the Machine if any to be provided by the Institute.
  - e. If the manufacturing company and/or its Indian agent (for Foreign manufactured) have authorized some agency for participation in this tender for a limited period than in that case they (Manufacturer / Indian agent) shall have to submit an undertaking duly notarized by Public notary that if their tender is selected they shall be solely responsible for compliance of all the terms and conditions mentioned in the bilateral agreement for purchase and subsequent supply order even if their authorized agent is changed. Any tender offer without such certificate duly certified by public notary shall be rejected in technical scrutiny itself.
  - f. **Bidder must submit a compliance checklist along with the technical bid itself.**
  - g. (Any tender offer without submission of above mentioned document (i.e. a to e) shall be rejected during technical scrutiny.)
  - h. If any new System/ Latest model machine is a launched in the market and seller has not installed such quoted models they should submit an undertaking that he has not installed such models previously (Notarized by Public Notary).They may submit supply order / performance certificate of previous model, which was recently installed by them.

**Installation & site plan:-**

Requirement regarding site/location etc. for installation of equipment, if any, should be mentioned in the tender. Time required for installation of system after delivery must be mentioned. In case of delay in installation institute will have right to charge liquidated damage. Specify the following points for installation of the System: -

- a. Total power consumption along with break up of main System and Accessories.
- b. Whether the System needs uninterrupted power supply where ever applicable.
- c. Maximum tolerated transfer time in case of interruption of power supply.
- d. Whether the System needs any humidity control device.
- e. Whether the System needs any separate power line/isolation Transformer.
- f. Does the System need the electrical shielding?
- g. Does it require special civil works for installation?
- h. Whether Air conditioner is an essential requirement for the system.
- i. Does it require any special civil works for Installation?

## **9. After Sales Service Conditions:**

- a. The Institute is in the pursuit of ensuring excellent after sales service for every user in respect of the equipment's supplied under this contract. The after sales services terms and conditions will be strictly enforced and those Bidders who are willing to support the Institute in its endeavour to provide trouble free operation/performance of the equipment's for the prescribed period need only participate in the tender.
- b. The after sales service shall be performed during the warranty period and also during the Comprehensive Maintenance Period (CMC)/ Annual Maintenance Contract, if awarded. The detailed terms and conditions for after sales service are mentioned hereunder.

### **c. Guarantee/Warranty Terms:**

- i. The successful Bidder has to warrant that the Goods supplied under this Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.
- ii. The successful Bidder further have to warrant that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Tender Inviting Authority's specifications) or from any act or omission of the successful Bidder, that may develop under normal use of the supplied goods.
- iii. All the equipment's including the accessories supplied as per the technical specification as mentioned in the bidding document should carry comprehensive warranty (including all spares, accessories and consumables) for a period mentioned in this document in the first instance. During this period, the successful Bidder shall replace all defective parts / accessories / consumables and attend to all repairs/break downs and undertake stipulated number of preventive maintenance visits to every user installation site. The cost of spare parts for all replacements has to be borne by the successful Bidder during the period of comprehensive warranty. The items which are not covered under warranty should be clearly mentioned along with rate of the items . If any spares / accessories / consumables etc. are not replaced by the bidder during warranty period, bidder should mention it clearly with name of the items with frequency of replacement and its rate of the item.
- iv. On expiration of the comprehensive warranty period, the successful Bidder shall be willing to provide after sales support for an additional period prescribed in this document.
- v. The prospective Bidder, who are not manufacturers, shall submit an undertaking from the Original Equipment Manufacturers (OEM) that they are willing to provide spare parts for the period of warranty as mentioned and also during the additional CMC/AMC period, if awarded. The OEM shall also assure continuity of service to their product, in the event of change in dealership or the Bidders – their existing dealers - couldn't provide service during the warranty / CAMC period. The undertaking from OEM is an essential document forming part of the Technical Bid, without which the tenders will be rejected summarily in the first round itself.
- vi. After sales service centre in Patna (Bihar) preferably or at least in East India should be available as part of the pre-qualification and the Bidder shall provide proof of their capability to undertake such maintenance/repair within the stipulated time.
- vii. The successful Bidder shall provide preventive maintenance as per the frequency mentioned in this document during the warranty period. The Bidder shall attend any number of break down/repair calls as and when informed by the institute authority.

- viii. Upon receipt of such notice for repair/breakdown from the institute, the successful Bidder shall, within the period as specified in this document, and with all reasonable speed, repair or replace the defective goods or parts thereof, without cost to the Tender Inviting Authority.
- ix. If the successful Bidder, having been notified, fails to rectify the defect(s) within the period specified mentioned in this document, the Tender Inviting Authority may proceed to take such remedial action as may be deemed necessary, at the successful Bidder's risk and cost and without prejudice to any other rights which the Tender Inviting Authority may have against the successful Bidder under the contract.
- x. Failure to attend the repairs in time or failure to attend the stipulated preventive maintenance visit or failure to replace the defective equipment's or to provide stand by equipment if the fault/down time exceeds the stipulated period or to ensure the stipulated up-time in an year shall lead to forfeiture of the performance security and/or may lead to blacklisting/debarring of the defaulting Bidder.
- xi. The equipment which requires quality assurance test shall be done at free of cost immediately after installation, during the comprehensive warranty period, during the CMC/AMC period, by the demand of User and also when major spares are replaced.
- xii. Any mandatory approval required for installation shall be obtained by the successful Bidder in liaison with the respective authorities.
- xiii. The Bidder shall submit the parameters which require calibration and the frequency of calibration required.
- xiv. The Bidder shall undertake on-site calibration of the equipment every year as part of the after sales service during the period of comprehensive warranty, CMC/AMC or on demand from the user.
- xv. The Bidders shall also have to submit whether periodic replacements of consumable items are required for proper functioning of their quoted machine/Equipment? If yes they should submit the list of such consumables along with price list and frequency of replacement per year, if the same is not replaced free of cost during warranty / guarantee period.
- xvi. An undertaking of the principal regarding continuity of after sales and services (CAMC) @ the agreement rate even in case of changes of Indian agent during the life span of the equipment, must be enclosed in the technical bid. Further, it will be the responsibility of the manufacturer Indian agent to get counter signature on the agreement to be executed with them by the principal.
- xvii;- The offered warranty includes:
  - Visits to the user institutions at frequencies prescribed as part of preventive maintenance.
  - Testing & calibration as per technical/service/operation manual of the manufacturer or as per the period specified or as per the demand of the user.
  - Quality Assurance tests (if applicable).
  - The cost of labour for all repairs/ and all spares required for replacement during repairs all kinds of accessories, Probes, all types of sensors and transducers, Electrodes, Detectors, battery, battery for UPS, other vaccumatic parts etc wherever applicable and also the accessories and other devices supplied along with the equipments like stabilizer, UPS, AC, Computer, Compressor, Monitor, etc, which forms part of the equipment system, without which it cannot perform satisfactorily.
  - The exclusion of warranty of any vital equipment parts will be compared with offers of other Bidders during evaluation of the bids and this may be taken into consideration in deciding the successful Bidder on the basis of expert advice.
  - The Bidder shall provide up-time warranty of complete equipment as mentioned in this document, the uptime being calculated on 24 (hrs) X 7 (days) basis failing Warranty period will be extended for every additional day of down time equal to one week.

- All software updates, if any required, should be provided free of cost during Warranty period.

**d. Comprehensive Annual Maintenance Contract:**

- The decision to enter into CMC or AMC will be determined on the basis of cost and complexity of the equipment by the Tender Inviting Authority, at its discretion, prior to the expiration of warranty period.
- The Comprehensive Maintenance Contract (CMC) is otherwise an extended warranty. All the terms and conditions agreed by the successful Bidder for executing the comprehensive warranty of the equipment shall be extended during the period of CMC, only difference being the payment of CMC charges is absent during the period of comprehensive warranty.
- The cost of CMC, accessories spares, and consumables as in case may be quoted along with taxes applicable, if any. The taxes to be paid extra, to be specifically indicated. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
- Failure/refusal on the part of the successful tender supplying/installing the equipment's to enter into CMC with the Tender Inviting Authority, at the end of the Comprehensive Warranty Period, if the Institute, as the case may be, desires so, shall lead to forfeiture of performance security and may also result in the blacklisting/debarring of the Bidder.
- The successful Bidder shall also indicate the rates for the CMC in price bid form and such rates are binding on the successful tenders after the expiration of the warranty period. The yearly rates for CMC shall remain the one and the same as quoted in the price bid form for the extended years.
- Cost of CMC (excluding taxes, if any) will be considered for Ranking/Evaluation purpose.
- The payment of the agreed CMC charges will be made as per frequency for payment after satisfactory completion of said period, on receipt of service report/ break down report from the user.
- The Bidder shall also have to submit whether periodic replacement of consumable items are required for proper functioning of their quoted machine/Equipment? If yes they should submit the list of such consumables along with price list and frequency of replacement per year if the same is not included in quoted Comprehensive Annual Maintenance Contract charges per year.

**10. Time Limits prescribed**

Sl. No	Activity	Time Limit
a.	Installation & Delivery period	12 weeks from date of issuance of Supply Order
b.	Comprehensive warranty period	3 /5 years from the date of successful installation.
c.	CMC period	5/7 years
d.	Frequency of visits to all User Institution concerned during Warranty/CMC	One visit every three months (4 visits in a year) for periodic/preventive maintenance and any time for attending repairs/break down calls.
e.	Frequency of payment of CMC charges	Every six months after completion of the Period.
f.	Submission of Performance Security and entering into contract	10 days from the date of issuance of Letter of Intent
g.	Maximum time to attend any Repair call	Within 24 hours.
h.	Uptime in a year during warranty as well as during CAMC period.	95% of 365 days.

11. Firm have to provide a minimum **UPTIME GUARANTEE** of 95% (95% of 365 Days) per year during the warranty period as well as during the Comprehensive Annual Maintenance Contract.
12. **While calculating the total unit price of the item / system to be procured, expenditure to be incurred in maintenance of the quoted item / system including all spare parts for a total period of seven years after expiry of the warranty period of three/ five years shall also be taken into consideration. Accordingly, it is mandatory for the bidders to submit the rate for Comprehensive Annual Maintenance Contract (with spares) for a minimum period of seven years after the expiry of warranty period of three years.**
13. Supplier will submit undertaking for ensuring uninterrupted supply of spares during the total life span of the equipment's.
14. Indian agency commission and Installation charge if any will be paid in Indian rupees after successful installation and demonstration of the equipment's.
15. Principal's Invoice of the quoted items must be submitted with the quotations.
16. Proof of the official Indian agent certificate of the firm must be attached. (Notary Certified Photocopy)
17. In order to fully and optimally utilize the equipment, training to Para Medical Staffs and Doctors should be provided. In continuation to this training, separate maintenance training for the machine and the sub systems should also be given to the "Equipment Maintenance Engineer" and "Equipment Maintenance Technicians". All the financial commitments in this regard shall be met by the bidder(s).
18. Bidder(s) have to submit an affidavit to the effect that they have not supplied the offered item(s) to any Govt., semi Govt. /Organization, Institution, etc. at the price lower than the price offered to I.G.I.M.S. – Patna.
19. All the claims regarding meeting the specifications shall be duly supported by appropriate, latest technical catalogues/brochures from the manufacturer. Simply stating that the equipment(s) meets the specifications is not sufficient and any such quotations will be summarily rejected. Computer printed documents or Photostat copy or laser printouts will not be accepted as technical catalogues / brochures.
20. Bidder might be required to demonstrate the system at the discretion of the institute.

**21. Notification of Award/Letter of Intent (LOI)**

- a. Before expiry of the tender validity period, the Institute will notify the successful Bidder(s) in writing, by registered / speed post or by fax or by email (to be confirmed by registered / speed post immediately afterwards) that its tender for equipment(s), which have been selected by the Institute, has been accepted, also briefly indicating there in the essential details like description, specification and quantity of the goods & services and corresponding prices accepted. This notification is undertaken by issuing a Letter of Intent (LOI) by the Institute.
- b. The successful bidder, upon receipt of the LOI, shall furnish the required performance security and submit an agreement in the prescribed format within ten days, failing which the EMD will forfeited and the award will be cancelled.
- c. The Notification of Award shall constitute the conclusion of the Contract.

**22. Signing of Contract**

The successful bidder shall execute an agreement for ensuring satisfactory supply, installation, commissioning and the after sales service/support during the warranty period and during the Comprehensive Annual Maintenance Contract.

23. The Director reserves the right to accept or reject any or all tenders without assigning reasons.



24. The Director reserves the right to modify, add or delete any terms & conditions of the contract as and when required.

**25. Amendment of tender documents:**

- a. At any time prior to the dead line for submission of Tender, the Institute may, for any reason, modify the tender document by amendment.
  - b. The amendment shall be notified and uploaded on the institute website [www.igims.org](http://www.igims.org) only and such amendments shall be binding on them thereafter.
  - c. The Institute shall not be responsible for failure to inform the prospective bidders. Purchasers of tender documents are requested to browse the website of the Institute for information/general notices/amendments to tender document etc on a day to day basis till the tender is concluded.
30. The Dispute, if any, will be subject to Jurisdiction at Patna (Bihar).

**Director,  
I.G.I.M.S. - Patna**

## CONDITIONS OF THE CONTRACT

**01. Duty Free Clearance, Transportation, Forwarding & Handling Charges:**

Clearance charges at point of Entry / Air Port and on ward transportation charges with Insurance up to I.G.I.M.S. - Patna will be borne by supplier's Indian Agent for which this Institute will not pay the charges. The firm should quote as FOR IGIMS Patna including all expenditure in **Indian Rupees only**.

**02. Demurrage, Taxes & Octroi:-**

No demurrage charges will be paid by the Institute in case of delay on the part of supplier. However, this Institute will provide all necessary documents required for clearance / transportation of the goods and for exemption of the taxes/octroi for which supplier/Indian agent will have to intimate/furnish his requisition of document required, if any, well in advance. Octroi will be payable by supplier / Indian agent, if required.

**03. Warranty Period:**

- a. The "**Complete System**" shall remain under warranty period of **three/ five years** from the date of satisfactory installation. The Complete System should include the basic unit and allied supporting components like UPS etc. to be supplied by the bidder along with basic unit if necessary for running the system and to be confirmed in writing.
- b. During warranty period of three/five years, bidder shall provide at least **four maintenance visits per year** at regular interval for usual maintenance and supervision. If bidder fails to provide these maintenance visits at regular interval, a proportionate deduction in the form of penalty on pro-rata basis will be recovered from the bidder from the Bank Guarantee amount. In case the Bank Guarantee is not adequate, Institute shall have right to recover the losses / penalty from other sources as well.
- c. Bidder shall also attend all breakdown calls within 48 hours of the receipt of the information from institute through fax/e-mail/mobile/sms etc.
- d. During warranty period, **bidder** shall maintain and keep **95% uptime** per year of the "**Complete System**" as per calculation given below:-  
  
$$1 \text{ Year} = 365 \text{ days}$$
$$95\% \text{ of } 365 \text{ days} = 347 \text{ Days per annum}$$
- e. The bidder shall compensate the uptime less than the specified above for **every additional day** of down time over and above 18 days stipulated above, warranty period will get extended by one week as penalty at no extra cost i.e. the extended penalty period will be equal to one week for every additional day of down time.
- f. During warranty period, **bidder** will make the "**Complete System**" in satisfactory working condition. In case, any spare parts, accessories, PCB, consumables etc. needs replacement due to normal wear and tear, **bidder** will supply and install the same for which no additional payment is to be made with a validity to cover warranty period if required.
- g. In case, the **bidder** is not able to provide services (and the items / accessories is not functioning as the reason thereof) due to natural calamity (act of God), Political unrest, Riot and fire at the user site, then in such a situation the warranty period will be extended by the period for which the item / accessories could not be operated because of supplier not been able to provide services.
- h. During warranty period, in case of any alleged damage due to accident / human error, a committee under the Chairmanship of Director, I.G.I.M.S. – Patna with one member from the bidder and one member from the Institute will decide the authenticity of the claim. The decision of the committee shall be final and binding on both the parties.

**04. After Sales Services: -**

- a. After expiry of the warrantee/Guarantee period of the equipment, the Indian agent will have to undertake the Comprehensive Annual Maintenance contract (with spare parts, accessories,

consumables etc.) of the Complete System for the further life span of equipment. The life span of the equipment shall not be less than ten years. In special circumstances the total life span of the Equipment/ items may be reduced by the Institute.

- b. The Complete System should include the basic unit and allied supporting components like UPS, Stabilizer, etc to be supplied by the bidder along with basic unit if necessary for running the system.
- c. During Comprehensive Annual Maintenance Contract, bidder shall provide at least **four maintenance visits per year** at regular interval for usual maintenance and supervision. If bidder fails to provide these maintenance visits at regular interval per year, a proportionate deduction in the form of penalty at the rate of 25% of contract amount per year will be deducted.
- d. Bidder shall also attend all breakdown calls within 48 hours of the receipt of the information from institute through fax/e-mail/mobile/sms etc.
- e. During Comprehensive Annual Maintenance Contract, **bidder** shall maintain and keep **95% uptime** per year of the “**Complete System**” as per calculation given below:-  
1 Year = 365days  
**95% of 365 days = 347 Days per annum**
- f. The bidder shall compensate the uptime less than the specified above for **every additional day** of down time over and above 18 days stipulated above, warranty period will get extended by one week as penalty at no extra cost i.e. the extended penalty period will be equal to one week for every additional day of down time.
- g. During Comprehensive Annual Maintenance Contract, **bidder** will keep the “**Complete System**” in satisfactory working condition. In case, any spare parts, accessories, PCB, all type of consumables etc. needs replacement due to normal wear and tear, **bidder** will supply and install the same for which no additional payment is to be made. If any spares / consumables / accessories etc. are not covered under Comprehensive Annual Maintenance Contract charges, it should be clearly mentioned with frequency of replacement and with rate. The validity of rate of such items should also be mentioned clearly. What will be the rate of escalation on the quoted rate after expiry of the validity of rate of such item must be mentioned.
- h. The payment of Comprehensive Annual Maintenance Contract will be made on half yearly basis after submission of satisfactory functioning report of the Complete System by the officials authorized by the Institute.
- i. In case, the **bidder** is not able to provide services (and the items / accessories is not functioning as the reason thereof) due to natural calamity (act of God), Political unrest, Riot and fire at the user site, then in such a situation the Comprehensive Annual Maintenance Contract will be extended by the period for which the item / accessories could not be operated because of supplier not being able to provide services.
- j. During Comprehensive Annual Maintenance Contract, in case of any alleged damage due to accident / human error, a committee under the Chairmanship of Director, I.G.I.M.S. – Patna with one member from the bidder and one member from the Institute will decide the authenticity of the claim. The decision of the committee shall be final and binding on both the parties.

#### 05. **Performance Security**

- a. There will be a security deposit amounting to 10 % of the total value of the equipment excluding taxes, which shall be submitted by the successful bidder within 10 days from the date of issuance of “Letter of Intent”.
- b. The contract duly signed and returned to the Institute shall be accompanied by a demand Draft or Bank Guarantee in the prescribed format.
- c. Upon receipt of such contract and the security money deposit, the Institute shall issue the Supply Orders containing the terms and conditions for the execution of the order.
- d. Failure of the successful bidder in providing security money deposit as mentioned above and / or in returning contract copy duly signed in time shall make the bidder liable for forfeiture of its EMD.

e. The Performance security shall be denominated in Indian Rupees or in the currency of the contract as detailed below:

- i. It shall be in any one of the forms namely Account Payee Demand Draft or Bank Guarantee issued by a Scheduled bank in India, in the prescribed form as provided in this document endorsed in favour of the Institute.
- ii. Institute will release the security money deposit without any interest to the successful bidder on completion of the successful bidder's all contractual obligations including the warranty obligations & after receipt of certificates confirming that all the contractual obligations have been successfully complied with.

**06. Delivery period/Liquidated Damage: -**

Goods should be delivered within three months after receipt of Supply Order. If the delivery is not affected by due date, the Director, I.G.I.M.S. - Patna shall have the right to charge liquidated damage on supplier/his Indian agent as under: -

- i. 1<sup>st</sup> extension for a month or a part thereof @ 2% per month .
- ii. 2<sup>nd</sup> extension for an additional month or a part thereof @ 3% per month subject to maximum Limit of 20% of the order items.
- iii. Cancellation.- If delivery is not done even after 2<sup>nd</sup> extension Institute shall have the right of cancellation of Supply order at its discretion. The institute may also cancel the supply order without giving any extension.

**07. Payment: -**

- a. 90% payment will be released against delivery and successful installation of the equipment & balance 10% will be released on submission of 10 % Bank Guarantee of the total cost of ordered value. This Bank Guarantee will be released after expiry of guarantee period.

**08. Validity of Price:-**

Minimum up to one year from date of tender submission and it should be extendable.

**09. Part Supply:**

No part supply/ wrong supply or short supply will be accepted by the Institute. The Director IGIMS, Patna will be the final authority and will have the right to reject full or any part of supply, which is contradictory to the terms and conditions agreed at the time of placement of order. In case of rejection of any supplied items due to nonconformity in quantity and/or quality, Institute will have right to charge liquidated damages, as it deems fit.

**10. Packing & Marking:-**

Goods must be securely and adequately packed and protected in order to prevent damage, otherwise all losses and /or damage resulting from inadequate packing and/or inadequate protection or inadequate marking shall be borne by seller/seller's Principal abroad.

11. Supplier may have to provide required manpower for running the equipments at mutually agreed remuneration (Which shall not be more than remuneration payable for the particular category of staff at IGIMS) at the sole discretion of the Institute, till institute is able to arrange its own staff for the purpose.

**12. Insurance: -**

Insurance up to Patna will be borne/arranged by principal supplier/his Indian Agent.

**13. Installation & site plan:**

Requirement regarding site/location for installation of equipment, if any, should be mentioned in the tender. Time required for installation of system after delivery must be mentioned. In case of delay in installation institute will have right to charge liquidated damage.

Specify the following points for installation of the System: -

- a. Total power consumption along with breakup of main System and Accessories.
  - b. Whether the System needs uninterrupted power supply.
  - c. Maximum tolerated transfer time in case of interruption of power supply.
  - d. Whether the System needs any humidity control device.
  - e. Whether the System needs any separate power line/isolation Transformer.
  - f. Does the System need the electrical shielding?
  - g. Whether Air Conditioner is required for the System.
  - h. Does it require special civil works for installation?
14. The bidder should also quote for supply of “Un-Interrupted Power Supply” (UPS) with a battery backup of at least 30 minutes, “Constant Voltage Transformer (CVT)” of reputed manufacturer of required capacity along with Spike Suppressor or “Servo Voltage Stabilizer” as per requirement of the System. Bidder may quote the prices for all the above items (UPS/CVT/SERVO VOLTAGE STABILIZER) and the decision will be taken during technical evaluation of the item whether UPS is suitable or CVT / Servo Voltage Stabilizer will serve the purpose.
15. **Responsibility:-**
- The principal as well as its agent will be severally and jointly responsible for ensuring the minimum life span of 10 years for the equipment. Both the said principal abroad and his Indian agent will have the full responsibility for the proper functioning of the equipment/instruments within the warrantee period and thereafter during the life span of the equipment
16. The bidder is required to provide list of persons (along with their permanent and correspondence address) owing more than 1% share ownership in the company/firm (both principle and Indian Agent).
17. The bidder is required to submit compliance sheet, which should reflect details of clause-by-clause compliance of technical specifications as well as general terms & conditions failing which their offer shall be rejected.
18. In order to fully and optimally utilize the equipment, training to paramedical staff and Doctors should be provided. In continuation to this training a separate maintenance training for the machine and the sub system should also be given to the Equipment Maintenance Engineer and Maintenance Technicians of the Institute. All the financial commitment in this regard shall be met by the firm/Principal.
19. **Penalties for non-performance**
- The penalties to be imposed, at any stage, under this tender are;
- a. imposition of liquidated damages,
  - b. forfeiture of EMD/ Security money deposit,
  - c. termination of the contract,
  - d. Blacklisting/debarring of the bidder.
20. **Termination of Contract**
- a. Termination for default:- The Institute, without prejudice to any other contractual rights and remedies available to it (the Institute), may, by written notice of default sent to the successful bidder, terminate the contract in whole or in part, if the successful Bidder fails to deliver any or all of the goods or fails to perform any other contractual obligation(s) within the time period specified in the contract, or within any extension thereof granted by the Institute.
  - b. In the event of the Institute terminates the contract in whole or in part, the Institute may procure goods and/or services similar to those cancelled, with such terms and conditions and in such manner as it deems fit and the successful bidder shall be liable to the Institute for the extra expenditure, if any, incurred by the Institute for arranging such procurement.
  - c. Unless otherwise instructed by the Institute, the successful bidder shall continue to perform the contract to the extent not terminated.
  - d. Termination for insolvency: If the successful bidder becomes bankrupt or otherwise insolvent, the

Institute reserves the right to terminate the contract at any time, by serving written notice to the successful bidder without any compensation, whatsoever, to the successful Bidder, subject to further condition that such termination will not prejudice or affect the rights and remedies which have accrued and / or will accrue thereafter to the Institute.

- e. Termination for convenience: - The Institute reserves the right to terminate the contract, in whole or in part for its (Institute) convenience, by serving written notice on the successful bidder at any time during the currency of the contract. The notice shall specify that the termination is for the convenience of the Institute. The notice shall also indicate interalia, the extent to which the successful bidder's performance under the contract is terminated, and the date with effect from which such termination will become effective.

**21. Fall Clause:**

The prices charged for the equipment supplies under the contract by successful bidder shall in no event exceed the lowest price at which the successful bidder sells the equipment's of identical description to any other persons during the period of contract. If any time, during the contract, the bidder reduces the sales price chargeable under the contract, he shall forth with notify such reduction to the Institute and the price payable under the contract of the equipment's supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.

**22. Applicable Law & Jurisdiction of Courts**

- a. The contract shall be governed by and interpreted in accordance with the laws of India for the time being in force.
- b. All disputes arising out of this tender will be subject to the jurisdiction of courts of law in Patna (Bihar, India).

**Director,  
IGIMS - Patna.**

**CHAPTER:**

**SCHEDULE OF THE REQUIREMENT**

List of Equipment's
Group -A- Mobile Ophthalmic Unit
1.Vehicle Specification 2. Fabrication details for Mobile Ophthalmic Unit
Group –B Instruments in Mobile Ophthalmic Unit
1.Non Mydriatic Funds Camera 2.Photo Slit Lamp 3.Auto Refractometer with Keratometer 4. Direct ophthalmoscope 5. Indirect Ophthalmoscope 6. Trail Lenses set with trail frame 7. Vision chart & vision drum Paed. 8. Non Contract Tonometer 9. UPS 2 KVA 10. Generator of Adequate Capacity :5 KVA
Group -C- Pathology
1.Centrifuge 2.Automated Urine Sediment Analyser 3.Decaheaded Microscope 4.Triheaded Microscope 5.Pentaheaded Microscope 6.Histopathology Grossing Workstation 7.Automated Cover Slipper 8. Microwave 9.Autoclave 10.Incubator 11.Hot Air Oven 12.Labrotary Electronics Balance 13.Ph Meter 14.Water Bath 15.Projection Microscope 16.Binocular Microscope 17.Emnbedding Station 18.Automatic tissue processor 19.Automated Motorized Rotary Microtome 20.Liquid based Cytology (thin prep) 21.Cryostst 22.HPLC 23.Storage Cabinet for Specimens 24.Histopathology autostainer 25.Bone Decalcifer 26.Thermal Cycler(PCR) 27.Electrophoresis unit with western blotting apparatus 28.Spectrophotometer 29.Incubator/Shaker 30.Deep Freezer 31. Autostainer for IHC
Group-D: Pharmacology
1.Non Invasive Blood Pressure machine 2. Deep Freezer (-86°C) 3. Double bean UV-visible Spectroscopy 4.ELISA Reader 5. Semi Auto analyser 6. PCR 7. UV transilluminator 8.Centrifuge Machine 9. Digital Analytical Weighing Machine 10.Refrigerator
Group-E: Anatomy
1.Co2 Incubator 2. Biological Safety Cabinet 3.Cyclomixture 4. Weighing Machine (Electronic Analytical and Precision Balance )(4in No.) 5. Fluorescence microscope with camera
Group-F Biochemistry
1.Hot Plate with magnetic stirrer 2. Orbital shaker with rocking action 3. Gel Documentation System 4. Water Bath 5.pH meter 6. Micropipette 7. Laminar Flow Hood 8. Conventional PCR Light Thermocycler (Gradient ) 9. Image capture and analysis Software automated system for Karyotyping and FISH 10. Dry block incubator
Group-G: PMR
1.CPM for Upper Limb 2. CPM for lower limb 3. Four Station Gym Equipment's 4. PRP Centrifuge Machine 5. Dynamic Stair Trainer 6. Examination Table (Hydraulic + height Adjustable 7. Ultrasound and Electrotherapy Combination Therapy Unit 8. Treadmill 9. Unweighing support system For gait-training 10. Microwave Diathermy and Traction Combination Unit 11. Nerve Stimulator 12. Tilt Table motorized 13. Electromyography and NCV System 14. OT Table 15. OT Light 16. Patient Semifowler Beds for Day Care 17. Quadriceps & Hamstring Curl Machine 18. Upper & Lower Body Ergometers 19. Exercise Benches 20. Parellear Bar with Mirror 21. Shoulder wheel 22. Static Exercise Cycle 23. Trampoline 24. Examination Couch
Group-H: Physiotherapy
1.CPM Unit for Upper Limb 2.CPM Unit for Lower Limb 3. Thera Band station/Rehab and Wellness Station 4. Multi Gym Unit 5.Multi-Activities Work Station 6. Partial Weightbearing System / Un-weight Mobility trainer (with Treadmill) 7. Bolsters 8. Swiss Ball 9. Shock wave Therapy Unit 10. Laser Therapy Unit 11. EMG Biofeedback System 12.Moist Heat Therapy /Hydrocollator 13. Portable Combination Therapy





**Annexure - II**  
**COMPREHINSIVE ANNUAL MAINTENANCE CONTRACT PRICES SCHEDULE**

S. No.	Item Description	1 <sup>st</sup> Yr.	2 <sup>nd</sup> Yr.	3 <sup>rd</sup> Yr.	4 <sup>th</sup> Yr.	5 <sup>th</sup> Yr.	6 <sup>th</sup> Yr.	7 <sup>th</sup> Yr.	Total Comprehensive Annual Maintenance Contract over a period of seven years after expiry of warranty period of three years from the date of successful installation. (a + b + c + d + e + f + g + h + i)
a	b	c	d	e	f	g	h	i	j
1.	Name of the Equipment: Make: Model: Qty.:								
2.	Name of the Equipment: Make: Model: Qty.:								

**Scope of Contract (details as mentioned in the Clause No. – 13 of “Instruction to Bidder” & Clauses No.: 3, 4 and 5 of “Condition of Contract”).:**

- a) The rate of Comprehensive Annual Maintenance Contract as mentioned above should cover the Complete System. Complete System should include the basic unit and allied supporting components like UPS, Stabilizer, Computer System, Printer, De-ionizer, Dehumidifier etc to be supplied by the bidder along with basic unit.
- b) **Preventive maintenance visit:** Four Maintenance visits at regular interval for usual maintenance & supervision failing which 25% of the contract amount per visit would be deducted as penalty.
- c) **Break down maintenance visit:** As & when required
- d) **Response Time:** within 48 Hours.
- e) Uptime Guarantee: 95% of 365 days
- f) The above-mentioned charges should includes labour charges for maintenance and breakdown visits per year, spares, accessories and all type of consumables required for the maintenance of the supplied items. If any spares / consumables /accessories etc. are not covered under above-mentioned charges; it should be clearly mentioned with frequency of replacement and with rate. The validity of rate of such items should also be mentioned clearly. What will be the rate of escalation on the quoted rate after expiry of the validity of rate of such item must be mentioned.
- g) Payment of Comprehensive Annual Maintenance Contract would be made on half yearly basis after completion of work and satisfactory working report. In no case, advance payment is to be considered.

Seal and Signature of the bidder

ANNEXURE - III

**MANUFACTURER'S AUTHORISATION FORM**

**(To be submitted by authorized dealers/representatives/importers)**

No.

Dated:

To

The Director  
Indira Gandhi Institute of Medical Sciences,  
Sheikhpura,  
Patna – 800 014 (Bihar, India)

Dear Sir,

Tender No :  
Equipment Name :

1. We ..... (Name of the OEM) are the original manufacturers of the above equipment having registered office at ..... (full address with telephone number/fax number & email ID and website), having factories at \_\_\_\_\_ and \_\_\_\_\_ , do hereby authorize M/s. \_\_\_\_\_ (Name and address of bidder) to submit tenders, and subsequently negotiate and sign the contract with you against the above tender no.
2. No company or firm or individual other than M/s. \_\_\_\_\_ are authorized to bid, negotiate and conclude the contract in regard to this business against this specific tender.
3. We also hereby undertake to provide full guarantee/warranty /Comprehensive Annual Maintenance Contract as agreed by the bidder in the event the bidder is changed as the dealers or the bidder fails to provide satisfactory after sales and service during such period of Comprehensive Warranty / Comprehensive Annual Maintenance Contract and to supply all the spares/ accessories / consumables etc. during the said period.
4. We also hereby declare that we have the capacity to manufacture and supply, install and commission the quantity of the equipment's tendered within the stipulated time.

(Name)  
for and on behalf of M/s. \_\_\_\_\_

Date: \_\_\_\_\_ (Name of manufacturers)

Place:

**Note: This letter of authority should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.**

**ANNEXURE - IV**  
**BANK GUARANTEE FORM**

To

The Director  
Indira Gandhi Institute of Medical Sciences,  
Sheikhpura,  
Patna – 800 014 (Bihar, India)

WHEREAS \_\_\_\_\_ (Name and address of the supplier) (Hereinafter called “the supplier”) has undertaken, in pursuance of tender no \_\_\_\_\_ dated \_\_\_\_\_ (herein after called “the contract”) to supply The Director, Indira Gandhi Institute of Medical Sciences, (address) with ..... (Description of goods and supplies).

AND WHEREAS it has been stipulated by you in the said tender/bid that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the bid scope;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total amount of \_\_\_\_\_ (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We undertake to pay you any money so demanded notwithstanding any dispute or disputes raised by the supplier(s) in any suit or proceeding pending before any Court or tribunal relating thereto our liability under these presents being absolute and unequivocal.

We agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition no modification.

No action, event, or condition that by any applicable law should operate to discharge us from liability, hereunder shall have any effect and we hereby waive any right we may have to apply such law, so that in all respects our liability hereunder shall be irrevocable and except as stated herein, unconditional in all respects.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Supplier(s).

We, \_\_\_\_\_ (indicate the name of bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent, in writing, of The Director, Indira Gandhi Institute of Medical Sciences, Patna (Bihar). This Guarantee will remain in force up to (Date). Unless a claim or a demand in writing is made against the bank in terms of this guarantee on or before the expiry of (Date) all your rights in the said guarantee shall be forfeited and we shall be relieved and discharged from all the liability there under irrespective of whether the original guarantee is received by us or not.

(Signature with date of the authorized officer of the Bank) .....  
Name and designation of the officer

.....  
.....

Seal, name & address of the Bank and address of the Branch

**ANNEXURE - V**  
**POWER OF ATTORNEY**  
**(On a Stamp Paper of relevant value)**

I/ We.....(name and address of the registered office) do here  
byconstitute,appointandauthoriseSri/Smt.....  
.....(name and address) who is presently employed with us and holding the  
position of ..... as our attorney, to act and sign on my/our behalf to participate in the  
tender no.....for .....  
(Equipment name).

I/ We hereby also undertake that I/we will be responsible for all action of  
Sri/Smt..... undertaken by him/her during the tender process and thereafter on award of  
the contract. His / her signature is attested below

Dated this the \_\_\_day of 202\_ For\_\_\_\_\_

(Name, Designation and Address)

Accepted

\_\_\_\_\_  
(Signature) (Name, Title and Address of the Attorney)

Date : \_\_\_\_\_

# Specification & Allied Technical Details

## Group-A: Mobile Ophthalmic Unit

### 1. Vehicle Specification

Sl. No.	VEHICLE SPECIFICATION	TATA/MAHINDRA/EICHER	
	<b>MAKE</b>		
	<b>MODEL</b>		
<b>1</b>	Fuel type	Diesel	
	Engine no	497CR	
	Warranty	3 Years/3 Lakh KM	
	Gradeability	26%	
	Engine Cylinder	4	
	Cluch	330 mm dia	
	Transmission	5 speed manual (5F+1R)	
	Gear Box	GBS 40	
	Max. Torque	400Nm@1300-1500 rpm	
	Fuel Injection System	Common Rail	
	Fuel Tank Capacity	160 Litres	
	Max Speed	80 kmpl with speed Limiter	
	Electricals/Battery	12V,150Ah,65 Amps	
	Chassis frame	Ladder type frame with riveted/bolted cross member	
	Max Width	2495 mm	
	Wheel Base	5345 mm	
	Engine Location	Front	
	GVW	12670 Kg.	
	Axle Configuration	4 X 2	
	Front Suspension	Semi-elliptical leaf springs, with telescopic shock absorbers	
	Rear Suspension	Semi-elliptical leaf springs, with telescopic shock absorbers	
	Tyres	9x20-16PR6+1 Tyres	
	Turning Circle Diameter	20.5 m	
	Overall Length	10401 mm	
	Front overhang	1755 mm	
	Rear Overhang	3200 mm	
	Front Track	1964 mm	
	Rear Track	1806 mm	
	Driver Seat Type	4 Way adjustable	
	Sterring Type	Power	
	Sterring Adjustment	Rigid	
	Instrument Cluster	Analog with LED display	
	Service Brakes	Air Brakes	
	Parking Brakes	Spring actuated acting on rear wheels	
	ABS	Yes	

**(2.)Fabrication details For Mobile Ophthalmic Unit**

<b><u>Description:</u></b>		
Body shape & size	Slightly Round shape Body Overall Length-10450mm Over all Width-2500 mm Over all Height-2800 mm Internal Height-2000 mm EYE clinic Cabin Size-3900*2400*2000 cb mm( 13 ft*8ft*6.5ft)	
Body Skelton	Channel (4*2)-Sail make	
	Rectangular Pipe -60*40,40*40,40*20 mm; thickness-14 gage (Galvanized pipe)	
	Angle -1.25 inch,1.5 inch & 3mm thickness- standard	
Spl Attn	Complete Skelton –Treated By Red Oxide	
Metal Sheet	GI metal Sheet-single stretch For Roof (Central Part) and Below the Window Portion-20 Gage(1 mm thickness);	
	Side Lower portion of Body -14 gage Aluminum sheet	
Floor	Plane Floor; Finished By Waterproof –ply board -17mm & PVC flooring (Responsive /LG make-2mm)	
	PVC flooring colour-light blue finish; It is anti-skid & medicated	
	Flooring -2 mm thick –Responsive/LG make	
	At rear wheel- First we put colour coated sheet then 17 mm plywood	
Insulation	Complete Body –insulated by Thermo-coal & Hit-lone; Three layer insulation;1 <sup>st</sup> layer 12 mm Hitlone,2 <sup>nd</sup> layer 30 mm thermocoal,3 <sup>rd</sup> layer 6 mm hitlone	
Interior	Complete Interior –finish by FRP (Fibre Re-enforced plastic)	
	FRP moulded sheet supported by Metal re-enforcement	
FRP	FRP of Binani make-double layer thickness -3 mm	
	We apply Point adhesive & PU sealant to paste FRP	
Window	One left & one right window in Eye testing cabin—either or open window as per customer choice	
	Window Glass: Fixed/ open Glass window tinted-Green-Toughened (Not laminated)	
Rear	Rear cabin as Lenses & Glass shop type outlet; Flap type door	
Electrical	Electrical wire of Havelles (make-1.5mm,2.5 mm & 4 mm)	
	Conceal wiring with proper flexible conduit/sleeves	
	All switch & socket modular- Havelles/Anchor Roma make	
Lights	Head Lights and Tail Lights standard; Two Fog Light at Front bumper	
Light Bar	Public address system with Light Bar in Blue& Red colour Grand/Shiphon/Sholphin make- LED with 4 sound system	
Blue light	Two revolving light at rear top on both side	
Lights	12 volt light- 6 Number -LED/tube light 220 volt light 6 Number-LED /tube light	
	All lights are LED with good illumination	
Fan	Fan -12 v -carbonless –Parko/ Remmy -3 Number	
	Fan -220 V –Olympus/Bajaj Make- 4 Number	
Inverter	2000 va inverter with 200 Ah battery (Luminous/microtek)	

	Inverter & battery -kept under chassis at right side with proper lock system	
Power point	8 Number power point(2-2 on each side) with switches(6/15 Amp) for medical equipments –Electrical supply by Inverter	
Head Rack	<u>One Number of head rack at either side to keep consumables &amp; medicine</u>	
Seat	Attendant Seat for 3 person with seat belt & back cushion ,if possible with both Chair unit	
	Sofa Cum Bed type provision in Driver cabin as shown in Layout	
Cabinet	Cabinet –as per requirement	
	Cabinet made of Marine type board /ply and finished by Marino-AB+ laminate (Boverian beach colour)	
Washing	Wash basin with all accessories Sanitizer and Tissue paper stand at each working table	
Dust Bin	Two Number of Dustbin in Steel under Wash basin	
Accessories	Sun-wizer before driver seating	
	Mud-Flap	
	Fire Extinguisher-2 kg;2 No	
	Side View Mirror	
	All equipment has to be kept in cabinet after eye camp	
Table	Two working table for eye equipment	
Seat	Two standard chair for medical staff and Two stool for patient	
Dickey	2-3 dickey -provided under chassis for battery, inverter,	
<u>Generator and Power back (extra engine) for Air-condition</u>		
Main Door	Entrance door at left Front side of vehicle with footsteps – comfortable ride by even senior citizen Door at rear Side –Flap type door (as per customer choice) with plastic Curtain in Rear lense Shop	
	Plastic Flap to save cooling and dark colour curtain at Door to keep cabin dark at the time of testing (in Eye testing cabin)	
	Footsteps -Finished by Aluminium Chequered sheet	
Branding	Name , Address, Logo of Ambulance & contact details in Radium on all side of vehicle (50 sq ft)	
	If customer need ,complete branding of Van by 3M radium / Vinyl-it will charge extra as per actual	
Generator	Provision to install Generator of 6.5 Kva-Himalayan make ,on trolley that moves out for Fuelling and starting (Generator price not included)	
Air- condition	Provision to install ductable Air-condition run on vehicle engine Air-condition work in only moving condition of Van (price of Air-condition not included)	
Split Air- condition	Provision to install 1.5 Ton Split air-condition in Eye testing cabin and Split Air-condition -1 Ton in Rear lense shop (inverter technology based) ( both run by silent generator or out sourcing electricity)	
Inverter	1000 Va inverter with 145 AH Battery (Luminous make)	
	50 mtr long extension wire with socket for Charging inverter battery and out-sourcing electricity to van	
Jack	Hydraulic Jack should be installed at below the Eye Clinic cabin (4 pillar/Leg system) to put the MMU in stagnant position during camp (Price ofjack not Included)	

LED	Provision of 43" LED on both side of Vehicle (LED price not included) on one side	
Ophthalmic Chair Unit	<ol style="list-style-type: none"> <li>1. Seat minimum height 550 mm</li> <li>2. Seat maximum Height 710 mm</li> <li>3. Up &amp; down Stroke</li> <li>4. Seat Rotation: 0 to 180°</li> <li>5. Bck &amp; Forward Movement: 95° to 175°</li> <li>6. Net Weight: 189 kg</li> <li>7. Load Lifting: 200 kg</li> <li>8. Motor Available: 24V DC</li> <li>9. Stabilizer required: 1 kva min.</li> <li>10. Minimum area required: 8"x 10"</li> </ol>	
	<p><b><u>Power Requirements:</u></b></p> <ul style="list-style-type: none"> <li>• AC Input: 230V AC 50 Hz</li> <li>• Fuses : 5A Slow Blow</li> <li>• Power in VA: 350 VA</li> </ul>	

**Note:- Base Vehicle and Medical equipment's can be provided by**

**Customer Terms & condition:**

- 1) **Delivery : 60 days after purchase order and Payment**
- 2) **Taxes & Levies : Quoted extra in %**
- 3) **Warranty : 3 Year warranty for medical Equipment, one year except Glass & rubber part; Warranty & service of Air condition & 7 Years CMC.**



## **Group-B: Instruments in Mobile Ophthalmic Unit**

Sl. No.	List of Equipment (To be installed)	
	<b>Make</b>	
	<b>Model</b>	
1	<b>NON MYDRIATIC FUNDS CAMERA :</b>	<b>Mydriatic and Non Mydriatic Imaging:</b>
	<b>Photography Models</b>	1. Color, Red Free and infrared imaging
	<b>Focusing Mechanism</b>	2. Auto- Focus & Manual Focus Wheel, ability to disable auto focus on a/Software
	<b>Field of view</b>	3. At Least 40 degrees Optical Magnification
	<b>Diopter magnification</b>	4. Compensation for Ametropia +35D.....-35D
	<b>Light Source</b>	5. Mydriatic mode: Cool white LED Non-Mydriatic mode: Infra-Red and Cool White LED ISO 15004 safety assured
	<b>Levels of Illumination</b>	6. Illumination levels controllable through software
	<b>Regulatory Certification</b>	7. CEI IEC6060-I, IEC6060-2, IEC62304, IEC62133 ISO15004-I-2, ISO10940, USFDA 510K
	<b>AC power adaptor</b>	8. 9V, 2A external CE marked medical grade adaptor
	<b>Camera &amp; Display Interface</b>	9. Smartphone Camera with integrated smartphone based touch display
	<b>Camera Resolution</b>	10. Equal or greater than 80 Ip/mm at imaging plane traceable to ISO 10940 with at least 8 MP prixel resolution
	<b>Form &amp; Construction</b>	11. Fixed smartphone holder fixed to optical interface (W)(DHX)
	<b>Battery &amp; Back up</b>	12. 7.0 V at least 1400 mAh Li-ion rechargeable battery
	<b>Environmental</b>	13. Operating Temperature 0 degree Celsius to 40 degree Celsius Relative humidity 10% to 95%
		14. iOS Operating System based , with built in Patient.
2	<b>Photo Slit Lamp:</b>	
	1. Slit width:0-8mm/0-14mm, continuous	
	2. Slit length:1-8mm/0-14mm,adjustable continuous	
	3. Slit angle:0 to 180 deg. Continuous both vertical and horizontal.	
	4. Decentering of slit image: +4 to -4 horizontal	
	5. Diaphragm sizes:0.2-8mm/0.2-14mm	
	6. Rotation :0.180 degrees.	
	7. Light source: halogen lamps/ Tungsten/LED	
	8. Slit tilt : 0-20 degrees.	
	9. Filters: cobalt blue, red free,neutral UV protection	
	10. Binocular microscope with standard objective and eyepieces	
	11. 5x-----40x magnification in steps with drum rotation	
	12. 6-----40mm field of view	
	13. Movement (base movement (x,y,vertical), adequate chin rest)	

	14. Motorized table for slit lamp.
	15. Attachment for Applanation tonometer.
	16. Beam splitter and digital adapter.
	17. 8 GB SD/SDHC memory card and power cable
	18. Standard accessories: Spare Bulbs, Hurbey lens, Appalation tonometer
	19. Suitable motorized stand.
	20. It should be European CE & US FDA certified
3	<b>Auto Refractometre with Keratometer:</b>
	1. Objective ± subjective mode & measuring corneal astigmatism, low contrast glare acuity testing
	2. Measurable range- Sphere plus/ minus 20D, Cyl 0 to 7D, Axis 0 to 180, minimum pupil size 2mm, vertex distance 10.5,12.0,13.5 preferably wiot IOL mode and prout out facility
	3. High Accuracy measurements of corneal and contact lens radii determination of corneal astigmatism
	4. Distance independent co-independent measuring technique . Prism cells for contact lens measurement with power supply unit. Range 4mm to 13mm radius with 0.01mm increments. Halogen lamp illumination, steel balls standard radius for calibration.
4	<b>Direct Ophthalmoscope:</b>
	1. Illumination:3.5V,2.8W Mini Halogen bulb
	2. Recharging unit: Input Voltage: 220V±10%V
	3. Input Frequency: 50Hz±1Hz
	4. Input Power:8VA
	5. Battery :Rechargeable BT224G
	6. Viewing Lenses:0,±1,±2,±3,±4,±5,±6,±8,±10,±12,±16,±20,-25,-35
	7. Apertures: Large Spot, Small Spot, Slit, Central Net, and Red-free New
	8. Weight:118g (Excluding battery)
	9. Total Weight: 340g
	10. Dimensions: 42mm x32mm x210mm
5	<b>Indirect Ophthalmoscope charger:</b>
	1. Apertures and filters: Can be "locked" into a desired position.
	2. Adjustment Levers: Also feature a " Friction-clutch" (Safety Clutch) to protect mechanisms from forced adjustment while in the "lock" position.
	3. Increased PD Range: From 46-74mm.
	4. Soft Touch Controls: All key adjustment controls feature soft touch surfaces for precise and positive adjustment control.
6	<b>Trail lenses set with trail frame:</b>
	1. Range of Binocular Pupil Distance
	2. Adjustment: 48-80mm PD
	3. Range of Monocular PD adjustment: 24-40mm
	4. Minimum Calibration Value:1mm
	5. Axial Calibration for Right Eye:45° through 180° to 135°
	6. Axial Calibration for Left Eye:120° through 0° to 60°
	7. Axial Calibration increases counter clock wise along the lens frame in increments of 5°
	8. Inner Diameter of Lens Frame:32.5mm
	9. Four lenses may be inserted in each side of frame simultaneously.
	10. Each Lans may be rotated around the entire 360° Displacement of the lens in relation to the position of lens
	11. Frame geometrical cener :< 0.3mm
	12. Nose pad adjustment length:0:14mm
	13. Nose Pad adjustment angle:0° to 30°

	14. Range of Temperature length adjustment:98:135mm
	15. Maximum width between the temples: 200mm 15. Weight:72g
	16. Trail Lens set:-Specifaction: Lenses contain Spherical +(0.12D to+20D) Spherical -(0.12D to-20D) Cylinder + (+0.12D to 6D) Cylinder + (+0.12D to 6D) Prisms(1 to 12) ACCESSORIES Slit, Red, Green, Pin Hole occiude.
7	<b>Vision Chart &amp; Vision drum Paed:</b>
	1. Remote Control with Cord
	2. Compact & Light weight
	3. Pleasing colour to match all interiors
	4. Included colour deficiency test
	5. The Regular sequence of charts offered are- English,Hindi -Regional Language- C Chart- Dot Chart- All chart are available up to 6/4 vision (over correction)
	6. Regional language available
8	<b>Non-Contact Tonometer: Specification:</b>
	1.Measurement Range 0-60 mm Hg (0-30 mm Hg / 0-60 mm Hg)
	2.Pressure measurement: 1 to 60 mmHg (1 mmHg step)
	3.Working Distance 11 mm
	4.Measurement display TV monitor screen
	5.R/L change-over ... automatically detected and displayed Up to three measurements of each eye can be displayed and printed out
	6. Measurement recording Built-in printer
	7. Measurement Mode: Auto start or manual (selectable)
	8. Should have an error indication
	9. Weight: less than 20 Kgs
9	<b>UPS: 2 KVA</b>
10	<b>Generator of Adequate capacity: 5 KVA</b>

## NOTE

1. The Make and model of the equipment with authority letter to be attached
2. The warranty of the equipment should be 3 years.
3. The firm has to quote CAMC for the equipment for the 7 years.
4. The firm should quote the price Separately for A and B .
  - a. Vehicle + fabrication
  - b. Cost of instruments

# **Group-C: Pathology**

## **1. TABLE TOP CENTRIFUGE MACHING**

The equipment should have the following features

1. Table Top version
2. Tube capacity: No.24-36:Size 5-15 ml
3. Digital timer
4. Strong fabricated & corrosion resistant steel
5. Control panel- for start/stop switch, dynamic brakes, step less speed regulator with zero start switch& speed indicator with timer & protective fuses
6. Door interlock
7. Maintenance free brushless drive motor with exact speed pre-selection & display. Speed range: 100 to 10,000 rpm & above, accuracy 1 rpm
8. Centrifuge complete with Swig 7 basic rotors & four buckets- 01 set
9. Power supply: power input: 220-240 VAC, 50Hz

## **2. Auto Urine Sediment Analyser**

1. The equipment should be Fully Automated Analyzer to report Urine Sedimentation reports
2. The equipment should have minimum 100 samples per hour throughput.
3. The equipment should have whole field view of microscopic images of sediments. Samples should Be evaluated using true microscopy analysis.
4. The equipment should be based on Automatic identification of urine particles by the Auto Image Evaluation Module.
5. The equipment should detect following particles automatically and should analyse in quantum for reporting in p/ul or p/hpf :Red Blood Cells; White Blood Cells; WBC Clumps; Hyaline Casts; Pathological Casts; Squamous Epithelial Cells; Non Squamous Epithelial Cells; Bacteria with differentiation of Rod & Cocci; Yeast; Crystals (CRY): Calcium - oxalate monohydrate, Calcium-oxalate dihydrate, Uric acid, Triple phosphate; Mucus; Sperms.
6. The equipment software should allow user to review each patient results individually and should have facility to edit the results as well as digital images.
7. The equipment should have minimum 1 sample loading capacity up to 100 with continuous loading facility.
8. The equipment should have individual chamber / cuvette for individual sample analysis.
9. The equipment should have internal storage of cuvettes.
10. The equipment software should have Internal QC analysis for Third party controls and it should be open for third party controls.
11. The equipment should have LIS connection facility.
12. The equipment should have liquid level detection and should work with minimum 2ml urine sample
13. The equipment should use low sample volume maximum 200 ul for each sample.
14. The equipment should have facility for moderate centrifugation process so that to preserves the cells and casts in urine sediment.
15. The equipment should capture whole field images-similar to the HPF images of routine manual microscopy – automatically and these images should be transferred digitally to software for further analysis.
16. The equipment software should have advanced result management, streamlined documentation through LIS, work list handling.
17. The equipment should have internal memory to store minimum 5,000 tests results and should Have USB ports to take back up at any point.

## **03. Decahead Microscope**

1. Optical system: Infinity corrected system
2. Focus: Vertical stage movement 25mm per coarse stroke Vertical stage movement 1micron per fine stroke Stage rotation of 270 degrees with Stage Lock and Stage Tension adjustment.

3. Illuminator: Built-in-Koehler illumination for transmitted light 12V100W halogen bulb (pre-centered) Light Intensity adjustment centrally located so both hands can be used to increase and decrease light, New Eco Switch for Energy saving to switch off the Light when user moves away from the microscope, Light preset switch for photography. Blue Built-in filters, Neutral density filter 6 and Neutral Filter 25
4. Revolving nosepiece: Interchangeable Reversed Septuple Nosepiece with DIC slot
5. Objectives: Plan 2x,4x, 10X, 20X, 40X, & Plan Fluor 100XOil
6. Observation tube: Wide field Trinocular head with Field no. 22 mm or more with three Light path selection of 100:0, 20:80 and 0:100
7. Stage: Ceramic-coated coaxial stage with right hand low drive Control with X and Y axis Tension adjustment
8. Condenser: Swing out condenser (N.A 1.1), for 2X -100X
9. Teaching Attachment: For 1+ 9 persons Head with eyepiece of Field no. 22 or more, LED arrow pointer with variable intensity and with Green / Red colour selection
10. There should be attachment for Polarizer
11. There should be provision for demonstration before final approval of equipment
12. The equipment should be USA- FDA/European- CE approved

#### **04.Trihead (Three Heads) Microscope**

1. Multi – viewing device (3 simultaneous observers).

Discussion LED pointer (arrow) under the main head.

Optional main Head : Binocular ERGO head with 30 -60 viewing angle

Main body with focus system and X-LED illumination for general purposes.

##### **Choice of:**

Upgrade (controller) for any kind of motorization (stage, Z-axis.nosepiece, or all of them Together ) (must be added for any motorized configuration)

Motorization of Z-axis

##### **Choice of:**

Sextuple reversed nosepiece,for RMS objectives with DIC slot

Sextuple motorized reversed nosepiece, for RMS objectives with DIC slot

Choice of:

IOS W- PLAN 2X, 4X, 10X, 20X, 40X, 100X

IOS W- PLAN 4X, 10X, 20X, 40X, 60X, 100X

IOS W-PLAN F4X, 10X, 20X, 40X, 100X

##### **Stage**

Choice of:

Standard Mechanical Stage

Rackless Mechanical Stage a

MPC (Mineral Solid surface) rackless Mechanical Stage

Heating stage,with digital temperature controller

Motorized mechanical Stage

##### **Focusing**

Coaxial coarse and fine focusing mechanism (graduated,0,002mm) with upper stop, to fervent the contact between objective and specimern Adjustable tension of coarse focusing knob.

##### **Condenser:**

0.90/0.25 NA swing –out condenser (Required for use with 2xobjective)

0.90N.A swing-Out Condenser

1.20 N.A Swing-Out Condenser

##### **ILLumination**

Light source type X-LED<sup>8</sup> with white LED; light intensity control using a knob on left side of the frame.

LED power: 8w (Comparable to a 100w halogen bulb).

Color temperature: 6300k

LED average lifetime approx: 50,000h.

External power supply: Input 100-240vac 50-60Hz/ Output 6vdc 2.5A

Max power required:13W

##### **Accessories**

Instruction manual and cover included.

#### **05. Pentahead Microscope**

1. Optical system: Infinity corrected system
2. Focus: Vertical stage movement 25mm per coarse stroke Vertical stage movement 1micron per fine stroke Stage rotation of 270 degrees with Stage Lock and Stage Tension adjustment

3. Illuminator: Built-in-Koehler illumination for transmitted light LED bulb (pre-centered) Light Intensity adjustment Centrally located so both hand can be used to increase And decrease light and with auto light intensity Adjustment with change of objective lens
4. Revolving nosepiece: Interchangeable/Removable Reversed Coded Quintuple Nosepiece for auto light adjustment
5. Objectives: Plan 2x,4x, 10X, 40X, & 100XOil
6. Observation tube: Wide field Trinocular head with Field no. 22 mm or more with three Light path selection of 100:0, 20:80 and 0:100
7. Stage: Ceramic-coated coaxial stage with right hand low drive Control with X and Y axis Tension adjustment
8. Condenser: Swing out condenser (N.A 1.1), for 2X -100X
9. Teaching Attachment: For 1+ 4 persons Head with eyepiece of Field no. 22 or more, LED arrow pointer with variable intensity and with Green / Red colour selection
10. There should be attachment for Polarizer
11. There should be provision for demonstration before final approval of equipment
12. The equipment should be USA- FDA/European- CE approved

## **6.TECHNICAL SPECIFICATION OF HISTOPATHOLOGY GROSSING TABLE.**

1. Corrosion resistance extruded aluminum frame and retractable acrylic side splash shield.
2. Louvred back-draft ventilation.
3. Fixed-height units have a work surface that is factory set to the specification up to 116 cm.
4. Stainless steel deep sink with cold/hot Tea Strainer water tap with manual control.
5. Vacuum breaker- protected water supply.
6. Unit comes with an integral centimeter ruler.
7. Internal exhaust model include an internal blower for short distance.
8. Type-304 stainless steel work surfaces and panel.
9. Provision to be kept for cold and hot water supply with draining system to be fitted with deep SS sink.
10. Fitted with fixed lower shelf and fixed upper shelf with fluorescent light.
11. System includes set of two potassium permanganate filters and two fine particle filters.
12. Electrical system panel to be incorporate.

## **7. AUTOMATED COVER SLIPPER**

The equipment should meet the following specifications:

1. Should produce slides with superior optical quality for reliable long-term storage.
2. Should be capable of cover slipping more than 300slides per hour
3. Should be able to handle slide racks of various manufacturers and should be adaptable to individual laboratory requirements
4. Should be used with common range of mounting media including mounting with wet mountants
5. Should be equally useful for histopathology and cytopathology slides
6. Should be highly reliable, cause minimum wastage and form a fully automated walk-away system.
7. Should have an inbuilt system for fume extraction so as to minimize exposure of lab personnel
8. Should be capable of being integrated with automated strainers

## **8. Microwave**

1. Table top design
2. Temperature control: +/- 1°C
3. Dimension: 21.5" x 24.5" x 19" (54.6 x 62.2x 48.2cm)
4. Weight: <40 kg
5. Power requirement: 120v system
6. Warranty: 1year

## **.9 Autoclave**

1. 35-50 liter capacity
2. Capacity to function at standard recommended temperature (121 degree centigrade), pressure (15 lb/square inch & holding time (20 minutes) etc.
3. High tech radial lick locking mechanism for ultimate care of operation and safety

4. Double safety valve protection mechanism ensuring a long life of the equipment
5. Water indication gauge hydraulic testing for more than double the working pressure
6. High accuracy, efficiency and reliability

## 10 INCUBATOR

1. Should be operated on 230V, 50Hz single phase AC supply, and having temperature ranging from ambient to 60°C
2. Should be double walled with stainless steel inner chamber having a minimum of two inner stainless steel shelves with holes and powder coated outer surface.
3. Inner chamber should be fabricated with ribs for adjusting shelves to convenient height.
4. Should have a minimum of chamber size of (L\*B\*H) of 450\*450\*450mm.
5. Should be provided with three side heating elements.
6. Should have air circulating fan (Which can be turn ON/OFF on demand) for uniform temperature on all shelves.
7. Should have double door with acrylic transparent door.
8. Should provide with a microprocessor based digital temperature controller with digital display.
9. Should have synthetic rubber gasket at the door.

## 11. Hot air woven

1. Temperature ambient up to 250° with least count 1°C.
2. Most economical with Latest German Technology & modern aesthetics.
3. Double metal sheet body with air pocket keep the machine cool.
4. Three fans for cooling body, door & Even temperature inside chamber respectively.
5. Digital temperature control with Display
6. Thermostat added to control the transfer of heat for fine temperature control.
7. Insulated glass door window to view the sample.
8. Perforated stainless steel removable two racks for keeping samples.
09. Air slider provision to eject the humidity formed inside the chamber

## 12. Laboratory Electronic Balance:

CAPACITY: 0.001 gm to 300 gm.

Pan size: 174 x 143 mm.

ACC : 0.001 GM.

CALIBRATION: Automatic.

DISPLAY: Lcd With Back- Light.

POWER SUPPLY: Adaptor As Well As Rechargeable Battery.

## 13. pH meter

pH-range	-2.000 to 20.000
pH-resolution	It should be user-definable: At least 0.001
pH-relative accuracy	At least ± 0.002
mV-range	At least -2000.0 to 2000.0
mV-resolution	It should be user-definable: At least 0.1
mV-relative accuracy	At least ± 0.2
Temperature range ° C	MTC: -30.0 to 130.0 ; ATC: -5.0 to 130.0
Temperature accuracy ° C	At least ± 0.1
Display	TFT colour
Concentration range	At least 1.00E-9 to 9.99E+9
Conc. accuracy	At least +/- 0.5%

## 13. WATER BATH:

- Thermostatically controlled inside stainless steel.
- Temperature ambient to 100c without racks and thermometer.
- Size; inside chamber 300x175 mm (suitable for 2 racks )
- High speed stirrer with stainless steel stirring rod and speed regulator.
- Microprocessor temperature controller with dual display achieve high accuracy of +5c

## 15. Projection Microscope.

Infinity corrected optical system, Anti Fungal

with high quality micro-technique present superexcellent micro-image at any observation. 30° Seidentopfrinocular viewing head with 360° rotatable eyepiece tube, interpupillary adjustable distance: 50-75mm, fixed spectroscopic ratio R:T= 50%:50% or 0:100 or 100:0, WF10X/22mm, diopter +/-5 adjustable, 26mm eyepiece tube

Prism incorporated, Slot for Polarizer

Revolving **Sextuple** nosepiece; (For 6 objective), stopper for each objective. DIC Slot

**Stage:** 180x175mm mechanical stage, **Double slide holder,**

**High resolution Infinity plan Anti-Fungal coated High contrast Objective.**

Plan achromatic objective 4X, 10X, 20X, 40X, 60X, 100X

**Condenser:** NA 1.2/0.22 universal condenser

**Body (Frame):** Integrated all-metal high-pressure die-casting body, precision transmission mechanism with pinion and rack. Coarse focusing scope: 25-30 mm, with tightness adjustment and place limit set, fine adjustable precision: 0.002mm, upper limit stopper. filter holder

**Transmitted illumination:** Koehler illumination, High Intensity 5W-10W LED Color (predetermined filament center), intensity continuously adjustable, 100-240V AC 50/60Hz wide range voltage, LBD color-change filter (Φ45mm) Microscope Should be upgradeable to: Epi- Fluorescence 100W/130WHBO/LED with 6 position turret, Phase Contrast, Teaching head (Up to 5 people) Polarization. Dark field

Microscopic scientific Digital HDMI+USB Camera with imaging software.

C-Mount focusable adapter

- All in 1 (HDMI+USB+SD card) C-mount camera with high sensitivity sensor;

- Simultaneous HDMI & USB output; Built-in mouse control;

Built-in image capture & video record to SD card;

Built-in toolbar including zoom, mirror, comparison, freeze, cross, browser functions; Built-in image & video browsing, display & play;

- Pixel (μm): 2.8x2.8

- G Sensitivity: 510 mv with 1/30s, Dark Signal: 0.15mv with 1/30s

Recording System: Still Picture or Movie (USB)

LED HDMI TV: 32" LED HDMI TV for Image projection.

Note: Microscope, camera and software from same make for better compatibility

## 16. BINOCULAR MICROSCOPE

The equipment should have the following features:

### **Optical system:**

Infinity corrected system

### **Focus:**

Vertical stage movement 25 mm or more per coarse stroke Vertical stage movement 1 micron or less per Fine stroke.

### **Illuminator:**

Lamp House for LED with connecting cable having life Span of 20,000 hrs approx

### **Revolving nosepiece:**

Reversed Sextuple revolving nosepiece..Should be upgradeable to DIC in future.

### **Objectives:**

Plan 2x N.A 0.06

4X N.A 0.10

10X N.A 0.25

20X N.A 0.40

40X N.A 0.65 (spring loaded)

100x N.A 1.25 (Spring loaded, oil)

### **Observation tube:**

Wide field Trinocular Eyepiece tube.

### **Stage:**

Ceramic coated surface mechanical stage with right-hand low drive control with left hand for two specimens

### **Condenser:**

Swing out condenser N.A. 0.9- 0.16. Accessory for Polarized microscopy up gradation should be possible

There should be provision for demonstration before final approval of equipment

## 17. SPECIFICATION FOR EMBEDDING STATION

### **Bright Illumination:**



- LED lighting uniformly illuminates the workspace without the clutter of awkward remote lamps. A properly illuminated workspace reduces fatigue and minimizes errors.
- Lighting intensity is easily user adjustable
- Five levels of illumination for both specimen and accessory areas
- **Cool and Contoured:**
- All user contact points are smooth and insulated providing a cool and comfortable workspace. Pressure points and uncomfortable heat are eliminated.
- **High Capacity for High Efficiency:**
- 5 liter paraffin capacity
- Cold plate area for 72 base molds
- Large heated workspace and specimen holding area
- **Any Sample Size Handled with Ease**
- Adjustable paraffin dispense paddle. A simple adjustment moves the paddle to the most ergonomic position for the user.
- Even Super Mega Cassettes can be embedded with ease.
- **Integrated Para Trimmer®**
- A heated wax trimmer built directly into the workspace which removes excess paraffin at the embedding station
- **Intuitive User Interface**
- Large, easy-to-read touch screen display allows quick access to the temperature controls and other parameters. Programmable “sleep” mode saves energy around your workflow.
- **Temperatures**
- Wax reservoir 122 -158°F, 50 -70°C
- Cold spot 41°F, 5°C
- Hot spot 122 -158°F, 50 -70°C
- Tissue storage 122 -158°F, 50 -70°C
- Mold storage 122 -158°F, 50 -70°C
- Cold plate 10.4°F, -12

#### **18. Specification for Automated Vacuum Tissue Processor.**

- Comprehensive monitoring & documentation.
- Active paraffin cleaning cycle.
- Fully enclosed fume system.
- Improved cabinet design.
- Ergonomic design provides easy accessibility.
- Remote fill & drain enhances user safety.
- Max capacity of metal basket – 300 cassettes.
- Max capacity of microwaveable plastic basket – 252 cassettes.
- Retort material: SS
- Processing Retort volume: 4.3 ltrs
- Paraffin Temp. Range: 40-65°C
- Reagent Temp. Range: ambient, 35-55°C
- Retort draining: selectable (80, 120, 140 seconds), 3 steps
- Vacuum & pressure options: 4 (V/P, V, P, Ambient)  
Vacuum -70 kPa (g)  
Pressure +35 kPa (g)
- Recirculation (pump in/out)  
Time before 1<sup>st</sup> cycle: 16 minutes.  
Time between cycles: 20 minutes.
- Incubation time: 00h:01min-99h:59min
- Delayed end time: programmable, up to one week.
- No. of reagents bottles: 10 of 4.3 ltrs each.
- Clean cycle bottles: 3, plus 1 external.
- No. of paraffin bath: 3 & should be connected directly to the retort.
- Paraffin bath volume: 4.3 ltrs each.
- Average paraffin melting time: approx. 10 hrs.
- Display: Colour touchscreen.
- Should have CE /USFDA / DIN EN ISO 9001 certificate.

#### **19. Specification for Semi Motorized Microtome:**

- The Microtome should be manual cutting with disposable blade holder with disposable blades

- (Both High & Low Profile can be fitted) with following specifications:
- **The Section thickness range FINE 0.5 - 100µm with following increments:**
- 0.5µm increment from 0.5 - 2µm
- 1µm increment from 2 - 10µm
- 2µm increment from 10 - 20µm
- 5µm increment from 20 - 30µm
- 10µm increment from 30 - 40µm
- 20µm increment from 40 - 100µm
- **Section thickness range TRIM: 5 up to 500 µm**
- From 5 ... 10 µm in 5 µm- increments
- From 10 ...100 µm in 10 µm- increments
- From 100...200 µm in 20 µm- increments
- From 200...500 µm in 50 µm- increments
- Specimen retraction during return travel should be 40µm
- Horizontal feed range should be 28 mm
- Vertical specimen stroke 72 mm
- Section counter 5-digit, with reset
- Section thickness sum 5-digit, with reset
- Remaining travel to front end position 5-digit
- Specimen size: when using a standard specimen clamp 55 x 50 mm
- Specimen orientation: x - and y - axes with 8°
- Availability of ROCK Mode
- Rotation: up to 360°
- Cutting drive: manual by means of hand-wheel
- Coarse feed: motorized, graduated and continuous
- Speed for coarse feed: 400, 800 or 1200µm/s
- Storage Temperature range: -20°C up to +50°C
- Operating conditions: +5°C up to +40°C for indoor use only.
- With suitable Voltage Stabiliser (ISI certified)

## **20. Fully Automated Equipment for Liquid Based Cytology (LBC)**

1. LBC System which is highly effective in greatly reducing false negative results and provides increased confidence in the detection of preneoplastic and invasive cancer, where present
2. Low Inadequate rates and consistently high PPV(Positive Predictive Values) resulting in the identification of 'true' disease
3. Should ensure that 100% of the collected sample is sent to the laboratory and provides standardization in the collection process and reduces need for repeat recall and processing.
4. The system should be able to work with various collection methods as spatulas, brushes etc.
5. The retention of the brush head in the container eliminates the risk of any abnormal cells being discarded with the sampling device
6. Should preferably use an ethanol based preservative as the collection medium
7. Centrifugation process which effectively removes obscuring blood, mucus and polymorphs while still retaining the important diagnostic material.
8. Should process each specimen to produce up to 8- 10 equally representative slides especially for additional testing.
9. Should be capable of handling a high throughput of 45-50 slides stained per hour.
10. Should be able to process multiple specimens at the same time for best laboratory efficiency.
11. Should be capable of running at regular electrical requirements.
12. The preservative fluid for collection of LBC samples must be non-hazardous with easy storage and transport facility.
13. Should be capable of preparing thin layered slide within a standardized smear diameter from the particular sample.
14. For processing of both gynaecological and nongynae samples
15. Storage of samples at room temperature for about 4 weeks and in refrigerator for 6 months to allow performance of additional adjunctive tests such as HPV, if required
16. Compatible with HPV Testing
17. To provide the quotations for image analysis 1 Tender - Supply, Installation and Commissioning of Equipment required in Pathology Department AIIMS-Jodhpur Page 19 software and integrated image analysis system.
18. Provisions for training of laboratory personnel using LBC.
19. Hidden costs of all reagents and other items not included with the machine to be quoted separately in elaborate detail.

20. All labelling is completed at the start of the process with barcoding of all samples and to include additional identification details such as Name, Date of Birth etc
21. All consumables and reagents are provided for sample collection and processing.
22. Provision for power backup for minimum 2 hours in case of power failure.
23. Staining to be included as an integral part of the system to ensure a high degree of standardization

#### **21. SPECIFICATIONS for CRYOSTAT**

- Freestanding cryostat with encapsulated, splash-proof microtome. Spacious, stainless-steel cryochamber with antiglare illumination. Easy to clean and disinfect.
- Heated, removable sliding window. Stable, self-contained cryocabinet on casters.
- Outer surfaces and controls of instrument coated with nano silver coating to reduce risk of infection. Handwheel may be locked in two positions.
- 8° XYZ specimen orientation with zero point reference. Specimen retraction, (20 µm), can be switched off.
- Certified UVC disinfection: 30- and 180-minute cycles can be selected. Disinfection can be aborted at any time, if work needs to be resumed immediately. Automatic safety cut-off of disinfection cycle when sliding window is opened.
- Cryochamber temperature selection from 0 °C to -35 °C, adjustable in 1K increments at ambient temperature of 20 °C.
- Easy-to-clean, actively cooled specimen preparation zone with quick-freezing shelf for up to 8 specimens (maximum temperature -42 °C).
- 2 Peltier element freezing stations (17 K temperature difference to the quick-freezing shelf when the chamber temperature is 35 °C ).
- Cryochamber may be defrosted manually or via automatic hot-gas defrosting once every 24 hours. The cycle may be programmed in 15-minute increments. Defrost cycle: 12 minutes.
- Cryochamber and quick-freezing shelf with integrated Peltier elements can be defrosted manually and are equipped with an acoustic warning signal to prevent unintentional defrosting. Manual defrost cycle for Chamber and quick- freezing shelf: 12 minutes.
- Section thickness selection from outside the cryochamber.
- Total vertical specimen stroke: 59 mm Total horizontal specimen feed: 25 mm, Motorized coarse feed in 2 speeds: slow is max. 600 µm/s and fast is min. 900 µm/s. Step function: 20 µm each time the key is pressed at slow coarse feed speed. Control panel with membrane-protected buttons and locking function.
- LED display for cryochamber temperature, actual time, defrost time and section thickness selection. Visual indication of specimen stop positions (Front/Home).

Blade holders for high and low profile disposable blades should be quoted. 4 Specimen discs 25 mm, 4 Specimen discs 30 mm, 1 Section waste tray, 1 Storage shelf right side, 1 Storage shelf left side, 1 Brush shelf, 1 Cover for freeze shelf, 1 Tool set, 1 Bottle of cryostat oil, 50 ml, 1 Tissue freezing medium for Cryosectioning 125 ml. 1 Pair of cut-resistant safety gloves.

#### **22. SPECIFICATION OF HPLC**

1. Automated, Integrated, single point HPLC system, dedicated to Thalassemia and Hemoglobinopathy testing and screening
2. System should be able to quantitate Hemoglobins HbA2, HBA and HBF and able to detect HbS, HbD, HbE, HbC etc. and other rare abnormal hemoglobins
3. Should have dedicated program for sickle screening based on blood collection on S & S 903 filter paper. Alpha thalassemia program for newborns.
4. Audible alarms for low buffer overflow for waste tank and alarms for calibration failure.
5. Built in Autosampler microplate compatible, capable of analyzing 199 samples in batch and bidirectional LIS.
6. Complete ready to use Beta thalassemia reagent kit with vials, buffers, calibrators primers and columns (at least one set each.)
7. Dual Piston Pump to give a continuous and precise buffer gradient.
8. A manual on abnormal hemoglobin variants using the relevant thalassemia kit and a library of abnormal hemoglobins.
9. Onboard QC menu capable of storing QC data and printing standard deviation and Coefficient of

Variation.

10. Company should be able to provide normal and abnormal controls and also QC program.
11. System should have a dedicated program for analysis of globin chains.
12. All consumables required for installation and standardization of system to be given free of cost.
13. The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
14. The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%
15. Power input to be 220-240VAC, 50Hz fitted with Indian plug
16. UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up
17. Should be FDA,CE,UL or BIS approved product.
18. Manufacturer should have ISO certification for quality standards.
19. Comprehensive training for lab staff and support services till familiarity with the system on site.

**23. Storage Cabinets for Specimens**

The equipment should meet the following specifications:

1. The equipment should be made of high grade non corrosive stainless steel.
2. It should be possible to store a minimum of 400 specimens.
3. It should have an in built exhaust facility.
4. It should have a vacuum cleaning system.
5. It should be a floor mounted model with a height not exceeding 6 ft.

**24. HISTOPATHOLOGY AUTOSTAINER**

The Equipment should meet the following specification:

1. High throughput robotic stainer for Multiple staining applications and should run up to 12 racks in parallel.
2. Simultaneous staining of protocols of haematoxylin-eosin and pap stain should be available.
3. Equipment should have solvent resistant color touch screen to monitor the staining process using the graphical process representation.
4. Racks should be assigned to the correct Staining Protocol based on transponder & Color -code system.
5. The equipment should have 34 reagent stations and 6 wash stations of 450ml capacity.
6. The equipment should be programmable for 50 programs of upto 40 steps each with incubation time setting from 0 sec to 59 minutes 59 seconds.
7. Optional Integrated oven with temperature C for optimal slide drying is° to 70°setting from 40 preferred.
8. Continuous loading and unloading of slides via rack entry and exit door should be available.
9. Specimen slide throughput of at least 200 slides per hour upto 600 slides per hour is required.
10. Agitation programmable from 0 to 20 times or continuous should be available.
11. Reagent management System, Station information on touch screen & Data Logging should be available.
12. Programmable up and down movement of robotic arm should be available.
13. Fume extraction fan with charcoal filter to remove hazardous fumes should be available.
14. Gentle vibration to slide rack during lifting to reduce carry over contamination should be available.
15. Audible warning buzzer in case of any error during operation should be a feature of the equipment

**25. Bone Decalcifier**

1. Capacity up to 30 cassettes
2. W x D x H bench System 30X21X11cm and Solution reservoir 16X12.5X6 cm
3. Solution Volume upto 750ml
4. Bone section can be processed in just 15 minutes

**26. Thermal Cycler (PCR):-**

- a) 96 wellx0.2ml PCR tubes/one 96 well plate
- b) Temperature range 4 To 100°C
- c) Gradient PCR= capable of testing 12 different temperatures simultaneously across a gradient range of 1-20 and a temperature gradient from 30-99°C, with minimum 0.1°C increment in gradient
- d) Block ramp rate: 5.0°C/Sec.
- e) Sample ramp rate:4.4°C/S Temperature range 4-99°C/S Temperature accuracy: ±0.2°C Temperature uniformity:±0.3°C (20-72°C) Gradient technology should ensure identical ramp rates in both gradient and normal operations
- f) Auto Restart facility with user defined time interval when power fails and resumes

- g) Lid temperature range of 33-110°C
- h) Monitor should indicate the step, cycle and remaining runtime during the run
- i) Display- LCD

## 27. Electrophoresis Unit-

- Vertical- number of gel capacity- 2
- 1.0 mm spacer plates (5 plates per box)
- Casting stands- 2
- Casting frames- 4
- Power pack- universal
- Cell (tank and lid with power cables)- 1
- 10-well combs- 5
- 0.75, 1.0, 1.5mm mm spacer plates (5 plates per box)- 3 box
- Typical run time for SDS-PAGE- 35–45 min (at 200 V constant)
- Horizontal- Gel tray sizes (OD) (W x L)
- 15 x 10 cm
- 15 x 15 cm
- 15 x 20 cm
- 15 x 25 cm
- Cell size (W x L x H) 18 x 40.5 x 9.4 cm
- Power supply- 4 sets of output terminal, both continuous and timed run

## 28. Spectrophotometer:-

- Dual-monochromator spectrofluorometer system – with fluorescence detector
- (a) UV/Visible light with ELISA plate reader

## 29. Incubator/shaker-

- The system should be equipped with large, easy to read display screen.
- a. The system should have temperature range from +4°C to 80°C.
- b. The system speed should be 30-400rpm
- c. The system should have the accuracy  $\pm 1\%$
- d. The fluctuation/variation at 37°C should not be more the 0.1°C /0.5°C
- e. The system should have orbital shaking motion
- f. The system should have the option to mute the audible alarms
- 9. Air circulation by a fan to maintain temperature uniformity.
- g. The system should have the Corrosion resistance stainless steel interior and epoxy-powder coated exterior.
- 13. The system should have Temperature and shaking speed deviation alarm.
- 14. The system should have internal lighting.

- h. The system should be quoted with Universal slide out Platform having capacity to holds various size of flask sizes 50ml, 100ml, 200ml 250 ml, 500 ml, 1000 ml clamps each 5 no's and test tube racks with the main offer.

Electronic and mechanical components should be enclosed, protected from accidental spills. i. The system should have automatic restart function in case of power failure and after door opening and closing

23. The system should have acceleration/deceleration circuit to prevent sudden start and stop for delicate sample.

## 30. Deep- Freezer: -80°C deep freezer

- Energy-efficient ultra-low freezers: less than 5°C
- Best overall temperature uniformity: < 5.2°C with door openings, < 4.0°C with no door openings
- Long warm-up time from -80°C to -50°C at 5.05 hours
- Four capacities: 400, 500, 600 and 700 2-inch box
- 5 year standard warranty

## 31. Autostainer for IHC

1. The staining system for immunoHistochemistry and in situ hybridization
2. It should perform all the process automatically from banking to counterstain.
3. Totally hands free day or night with option of delay start.
4. Compatible with paraffin wax and frozen section and cytology smears.
5. Antibody menu of more than 20 primary antibodies at one time.
6. Minimum antibody dispensation of 100 ul. to maximum of 600 ul.
7. Capable of operating at temperature of 20-32 degrees C.
8. FDA/CE approved.
9. Should have 3 independent horizontal platforms with a capacity of 10 slides per platform.
10. The Immuno Stainer should have the capacity of staining 30 Slides at a time.

11. The stainer should be flexible to permit simultaneous processing of slide racks using deferent staining Protocols
12. The Staining System should have inbuilt antigen Retrieval system for heat treatment required for antibodies.
13. The Immunostainer system should have the convertible/Equivalent technology with latest software which should be upgradable.
14. The Stainer should have the facility for minimum usage as 100ul/test and the reagent container capacity may be 7ml or 30ml.
15. The stainer should have liquid level sensing (LLS). It should also alert when reagents are low or waste is full.
16. The stainer should have Robotic ID Imager to identify the slides and reagents loaded in the processing

#### Module

17. The Stainer should have optical Character Recognition (OCR)
18. The Immuno staining system should have the facility of LIS connectivity (optional).
19. Reagent Dispensing Method should be rinsed probe method.
20. The equipment should be LAN/HIS compatible.
21. 220-440 VAC, 50 Hz with Indian Plug and online UPS and at least 1 hour backup.

## **Group-D: Pharmacology**

### **1. Specification of Non-invasive blood pressure (NIBP) instrument (for rats and mice)**

#### **Technical Specifications**

- NIBP recorder for rodent along with NIBP transducer for Rat & mice.
- Rodent restrainers different sizes (S, M, L) and tail-cuff holder.
- Online and offline parameters like Blood pressure, heart rate, etc.
- The number of inputs 4 channels.
- 2 amplifiers for recording bio-potentials & 2 general purpose amplifiers channels.
- 1 stimulation unit capable of delivering square wave pulse of user-defined parameters, Voltage range 0-10V, pulse duration range 1-1000msec, frequency range 0-100Hz, Current range 0-20mA, Integrated and synchronized with software for NCV studies in rodents.
- The facility for ECG leads with real-time cardiac axis and vector analysis.
- User-friendly software for recording, analyzing and printing the data, the software should allow calibration of transducers, display of actual values, controllable gain, filter settings, baseline setting for event marking and annotation. It should be capable of measuring time interval between user-selected points, display of data value at user selected point, editing of the records and re-annotation.
- Facility for automatic analysis in while data recording and after recording for ECG, Heart Rate Variability, Blood Pressure, Dose-Response, Peak analysis, Spectrum analysis, etc.
- Should have the option for Mathematical function and Statistical analysis and export options to other software like MATLAB, Excel, QuickTime, Wav, Text etc for desired interpretation of the data.
- The software should provide an easy file sharing option to a distant user with-out involving any cost with a 5 year of free updates and upgrade.
- It should be capable of displaying data in scope mode and chart mode. It should allow calculation of rate, slope from raw channels in offline as well as online mode.
- The system must be universal to take care of other cardiovascular, respiratory, isolated tissue etc for future upgrades.
- Manufacturer/Supplier should have ISO certification for quality standards
- Should be US FDA/ European CE/IEC/BIS other safety standards approved product.
- Demonstration of the equipment and necessary training to be provided by the experts.
- Manufacturer should have experience of Manufacturing & Installation of the quoted product for at least 05 years. Documentary proof should be attached
- Dedicated PC compatible with software(7th Generation Intel Core i7/4GB/1TB/Windows 10 Home/Intel HD Integrated Graphics, UPS, CD/DVD writer/reader, USB ports(4), 17" LED screen with color laser printer).
- 5 years warranty with spares on complete system (except consumables).
- The firm should quote the CMC (With SPARES) charge for 5 years (6<sup>th</sup> to 10<sup>th</sup> year) after the expiry of comprehensive warranty.

### **2. Specifications for Deep freezer (-86°C)**

1. Capacity - 565L - 575L
2. Should be capable to accommodate  $\geq 40000$  nos of 2ml vials
3. Should have > 4 compartment with individual inner door for each compartment
4. Temp Range: -Programmable temperature range from -50°C to -86°C in 1°C increments.
5. Pull down time should be <5.11 hrs.
6. Power consumption should be < 10.6 kWh per day.
7. Heat output should be < 440W
8. Temperature sensor should be positioned at the middle of the freezer
9. Noise level should be < 60 dB
10. Interior panels and shelves should be made up of stainless steel ( not coated) and should be sterilized

11. Micro Processor control of temperature and alarms with non-volatile memory,
12. Automatic reset to prevent microprocessor controller from failure caused by power spikes.
13. Display should be in the eye level.
14. Should have inbuilt diagnostic software to monitor and diagnose the fault in the system
15. Should have key pad control panel, not touch screen
16. Should have hermetically-sealed two stage cascade system
17. Should have battery backup to activate alarms and display temperature during power outage.
18. Should have audible and visible alarms for temperature, filter clean, power out, low Battery, system fail, fault analysis,
19. Should have automatic vent port located within the user interface at eye level.
20. Should have the magnetic closures on inner doors
21. Should be CE certified

### 3. Specification of Double beam UV-Visible spectrophotometer

#### **Double beam UV spectrophotometer (UV-Vis, variable wavelength, glass and quartz cuvettes with data analysis software and computer interface)**

1. UV/Vis spectrometer with PC control, Chassis with thermal and vibration stability.
- Mode**
2. Energy, Absorption, Transmission, Reflectance
- Optics:**
3. Double beam sealed, quartz coated, with monochromator Grating
4. Concave holographic grating with 1000 lines/mm or better.
- Detector:** CDD/ Silicon Photodiode
- Sources:** Pre-aligned deuterium and halogen lamps with automatic switch over
5. Wavelength Range: 190-1200 nm or better
1. Stray Light: Max. 0.05 %T (220 nm) or better
6. Wavelength accuracy :  $\pm 0.1$  nm (656.1 nm)
7. Wavelength repeatability :  $\pm 0.02$  nm
8. Spectral bandwidth : 0.2, 0.5, 1, 2, 4 nm or better
9. Scan speed: 12000nm/min
10. Photometric Accuracy:  $\pm 0.005$  A at 1A or better
11. Photometric Reproducibility (at 1A): 0.0005 A (MAXIMUM DEVIATION OF 10 MEASUREMENTS) or better
12. Photometric Stability (at 1A): 0.0001A/h (at 500nm for 1.0 sec) or better
13. Baseline Flatness (1nm slit):  $\pm 0.001$ A or better
14. Spectral measurement: Scanning mode, scanning speed and data interval selectable, minimal integration time 0.02 s
15. Photometric range: -3 A to 3 A
16. UV resolution (Toluene-hexane):  $\geq 2.3$  (with slit width 0.5 nm at 20°C) or better than this
17. Photometric range : -3 to 3 Abs or better
18. Baseline stability : 0.0003 Abs
19. Resolution : 0.2 nm
- Standard Accessories:**
20. Branded PC, Laser Printer and Online UPS are to be offered with the system.
21. Peltier constant temperature system (15 - 55 °C)
22. Holmium Oxide Filter – Inbuilt or External
23. One Pair 10 mm, 3.5 ml volume pathlength Quartz Cell
- Standard, Safety and Training**
24. Should be FDA/UL/CE/BIS approved product.
25. Manufacture should have ISO 9001 certificate for quality standards.
26. On site comprehensive training for lab staff and support services till customer satisfaction with the system.
27. Installation testing: Supplier of the instrument must provide free installation , commissioning and testing
28. User/Technical/Maintenance manuals to be supplied in English.
29. Certificate of Calibration and Inspection.



30. List of Equipment available for providing calibration and routine Preventive maintenance support as per manufacturer service/maintenance manual.
31. Validation document should supply by vendor etc IQ,QQ, PQ. 13. Surge Protector is to be quoted and supplied with the instruments. Surge Protector is to be quoted and supplied with the instruments.
32. Compatible Branded desktop computer [(7th Generation Intel Core i7/4GB/1TB/Windows 10 Home/Intel HD Integrated Graphics, UPS, CD/DVD writer/reader, USB ports(4), 17" LED screen with color laser printer)

#### 4. Specification of ELISA reader

1. Should be endpoint, kinetic, spectral scanning, well area scanning
2. Should be compatible for 96 well plates
3. Should be inbuilt with Data Analysis Software
4. Should be Xenon flash light source
5. Wavelength should be Monochromator and wavelength range should be 200 to 999 nm, in 1 nm increments
6. Monochromator bandwidth should be under 2 - 5nm.
7. Dynamic range should be 0 - 4.0 OD
8. Resolution of OD should be 0.0001 OD
9. Pathlength correction should be available
10. Monochromator wavelength accuracy  $\pm 2$  nm
11. Monochromator wavelength repeatability  $\pm 0.2$  nm
12. OD accuracy should be 0 to 2 OD:  $\pm 1\%$   $\pm 0.010$  OD
13. Reading speed (kinetic) not should be more than 15 seconds for 96 wells plate
14. Power consumption should be 100 - 250 Volts AC. 50/60 Hz
15. Dimension should be less than 13" W x 13.5" D x 7.9" H
16. Weight should be less than 7 Kg
17. Compatible branded desktop computer [(7th Generation Intel Core i7/4GB/1TB/Windows 10 Home/Intel HD Integrated Graphics, UPS, CD/DVD writer/reader, USB ports(4), 17" LED screen with color laser printer)

#### 5. Specifications of Semi autoanalyzer:

1. Assay types: Absorbance, Endpoint, Kinetic, Fixed Time, Coagulation
2. Wavelengths: Minimum at 340nm, 405nm, 450nm, 505nm, 546nm, 578nm, 630nm, 670nm + 10nm
3. Photometer range: -0.1 - 2.000 Abs
4. Aspiration Volume: 0.3mL to 1.0mL
5. Cuvette Volume: 500 $\mu$ L
6. Flow Cell: 32  $\mu$ L
7. Storage Capacity: Minimum 190 Programs, 4000 Test records with reaction curve
8. Light Source: 6V/10W, Tungsten Halogen Lamp
9. Temperature Control: 25,30,37 $^{\circ}$ C by Peltier Effect
10. Display: 7" Graphic colour LCD with resistive touch screen, Resolution - 800 X 480 Pixels
11. Printer: In-Built 2" Thermal Printer (can be switched ON/OFF, when desired)
12. Interface: External Keyboard/ Mouse
13. Power supply: 100 - 240V AC  $\pm 10\%$ , 50/60 Hz
14. Storage Conditions Temperature: 15 $^{\circ}$ C to 40 $^{\circ}$ C, Relative Humidity: up to 85%  
Weight 6.5Kg(approx.)

#### 6. Specifications of PCR machine

<b>Platform:</b>	1 x 96-well plate, 96 x 0.1 ml tubes
<b>Comments:</b>	Fast 0.1 ml format and sample block enabled to run fast chemistry, Blocks: 25 $^{\circ}$ C (5 $^{\circ}$ C Zone-to-Zone)
<b>Dimensions:</b>	Height: 25 cm, Width: 24 cm, Depth: 49 cm
<b>Display Interface:</b>	6.5 in. VGA 32k color with touch screen
<b>Format:</b>	0.1 ml tubes, 96-well plate
<b>High Throughput Compatibility:</b>	High Throughput-Compatible
<b>Instrument Memory:</b>	USB and On-board
<b>Peak Block Ramp Rate:</b>	5.0 $^{\circ}$ C/sec
<b>Program Features:</b>	Auto re-start (after power outages), Program overwrite protection

<b>Reaction Speed:</b>	Fast, Standard
<b>Reaction Volume Range:</b>	10-30 $\mu$ l
<b>Sample Ramp Rate:</b>	$\pm$ 4.25 $^{\circ}$ C/sec
<b>Temperature Accuracy:</b>	$\pm$ 0.25 $^{\circ}$ C (35 $^{\circ}$ C to 99.9 $^{\circ}$ C)
<b>Temperature Range (Metric):</b>	4.0-99.9 $^{\circ}$ C
<b>Temperature Uniformity:</b>	<0.5 $^{\circ}$ C (20 sec after reaching 95 $^{\circ}$ C)
<b>Tm Calculator:</b>	Menu driven through touch screen
<b>Weight:</b>	11.4 kg (25 lb)

### 7. Specifications of UV transilluminator

1. Outer dimension: 280 x 340 x 80mm
2. Viewing surface: 160 x 200mm
3. Wavelength: 302nm
4. UV Tubes: 5 x 8W
5. Power: 100-240V, 50-60Hz
6. Wattage: 120W

### 8. Specifications of Centrifuge machine

Digital display

Speed >5000 rpm

Phase Single

Warranty 12 Months against any manufacturing defects

Package Content Complete with 8x15 ml, Swing Out Head with graduated glass tubes.

Number of Tubes 8

Rotor Capacity 8x15 ml

Capacity 200 ml

Voltage 220-240 V

Frequency 50 Hz

Head Type Swing out Rotor Head

Maximum RPM 3600 g

### 9. Specifications of Digital Analytical Weighing machine

1. Maximum capacity 220 g
2. Weighing platform dimensions 90 mm
3. Readability 0.1 mg
4. Repeatability 0.1 mg
5. Linearity 0.2 mg
6. Settling time 2 s
7. Sensitivity temperature drift 2.0ppm/ $^{\circ}$ C
8. Weight of balance 4.7kg(ME)/4.5kg(ME-E)

## **10. Specification of double door refrigerator (4°C- 8°C)**

1. Capacity of refrigerator should be 400 L - 450L
2. Energy rating should be 5 star/ Digital Inverter Technology
3. It should be double door system with LED display
4. It should be frost free.
5. It should be vertical system/ Free-Standing
6. Freezer Capacity: 80L - 90L and Ice tray is required
7. Door with in-built lock
8. Dimensions: L: 703-672, W: 600-585, H: 1670-1635; Weight: 57 kg - 59 kg
9. In-built voltage stabilizer should be available

## Group-E: Anatomy

Department of Anatomy			
Sr. No.	Equipment's	Technical Specification	
1.	<b>CO2 Incubator</b>	<ol style="list-style-type: none"> <li>1. Temperature control method : Direct heat &amp; air jacket</li> <li>2. Temp. range °C : Amb +3°C to 60°C</li> <li>3. Temp uniformity : &lt;= ±0.2°C</li> <li>4. Temp accuracy : &lt;± 0.1 °C</li> <li>5. Ambient temp range : 18 to 34°C</li> <li>6. External Dim : 26.0" x 26.0" x 35.4"</li> <li>7. Internal Dim : 19.9" x 20.9" x 25.0"</li> <li>8. CO2 control system : Microprocessor PID</li> <li>9. CO2 range, % CO2 : 0-20%</li> <li>10. CO2 accuracy, % RH : ±0.1</li> <li>11. Microbial filters are presents on all gas inlet and outlets ( ULPA Filter)</li> <li>12. CO2 sensor : IR sensor</li> <li>13. Humidification method : Humidity pan</li> <li>14. Humidity Range,% RH : up to 97%</li> <li>15. Interior volume : 150 to 220 Litres</li> <li>16. No of shelves : 4 nos</li> </ol> <p>Interior material : Stainless steel , type 304</p>	
2.	<b>Biological Safety Cabinet</b>	<ol style="list-style-type: none"> <li>1. Dimension Nominal Size 4 feet</li> <li>2. Stand Height (mm) 770mm</li> <li>3. Internal Dimensions (W x D x H) 1270*600*620 mm</li> <li>4. External Dimensions (W x D x H) 1500*795*2050 mm</li> <li>5. <b>Airflow Type: Class II, Type A2</b></li> <li>6. Exhaust Direction Top Exhaust</li> <li>7. "Airflow Pattern (down flow / exhaust)" 70% / 30%</li> <li>8. Average Inflow Velocity 0.55m/s</li> <li>9. Average Down flow Velocity 0.35m/s</li> <li>10. Blower: DC EBM Blower</li> <li>11. Work Zone: Stainless Steel SS304</li> <li>12. Main Body: Electro-galvanized steel with Akzo-Nobel white ovenbaked</li> <li>13. powder coated</li> <li>14. Sash Glass Thickness: 5mm</li> <li>15. Sash Glass Type: Tempered Glass, UV Proof</li> <li>16. Sash maximum Opening : 200 mm</li> <li>17. Sash minimum Opening: 460 mm</li> <li>18. Full Access for Glass Cleaning: Yes</li> <li>19. Illumination : ≥ 1100</li> <li>20. Noise : ≤ 60 (dB)</li> <li>21. Cleanliness: ULPA: ISO Class 4</li> <li>22. Filtration Efficiency: ULPA:≥99.9995%, @0.12µm</li> <li>23. Display: LED Colour Screen</li> <li>24. Downflow Velocity Display: Yes</li> <li>25. Inflow velocity Display: Yes</li> <li>26. Filter Lifetime Display by %: Yes</li> <li>27. Blower Switch: Yes</li> <li>28. Brightness lamp Switch: Yes</li> <li>29. UV Lamp Switch: Yes</li> <li>30. Socket Power Switch: Yes</li> <li>31. UV Timer: yes</li> </ol>	

		<p>32. Main Power Switch: yes  33. Related Power (W): 430  34. Power Supply: 220V, 50/60Hz  35. Alarm Type: Sound + Flash  36. Downflow Filter: ULPA Filter  37. Exhaust Filter : ULPA Filter  38. LED Brightness lamp: 31W, 1 PC  39. UV lamp: 31W, 1 PC  40. Water Valve : Standard 1 pc  41. Gas valve: Standard 1 PC  42. Stand : Yes  43. Adjustable Feet: 4, as standard  44. Casters: 4, As standard</p>	
3.	<b>Cyclomixture</b>	<p>1. Movement : Orbital  2. Diameter (mm) : 4  3. Motor Type : Shaded-Pole Motor  4. Motor Rating Input / Output (W) :58/10</p>	
4.	<b>Weighing Machine (Electronic Analytical and Precision Balances) (4 in No.)</b>	<p>1. Denver Instrument with below given specification or any other with following specification  2. Weighing capacity: - 230g.  3. Readability - 0.0001g.  4. Tare Rang (Subtractive) - 230G  5. Repeatability (Std. deviation) <math>\leq \pm 0.0001g</math>.  6. Linearity - <math>0.0002 \leq \pm g</math>.  7. Response time (Average) - 2.5s.  8. Sensitivity drift within <math>+10</math> to <math>+30^\circ C \leq \pm/* 2.10-6</math>.  9. Adaptation of ambient - by selection of 1 to 4 conditions optimized fitter; Display update : 0.1-0.4.  10. External calibration weight: <math>200 \pm 2</math>  11. Net Weight approx.. - 4.8/4.4 Kg.  12. Weighing pan size : 90 mm, 3.5  13. Weighing chamber height:230mm 9.1 in.  14. Dimension (WxDxH) - 230x303x330 mm 9.1 x 11.9 x 13.0 in.</p>	
5.	<b>Fluorescence microscope with camera</b>	<p><b><u>MICROSOPE SYSTEM:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Optical System:</u></b> Infinity corrected Optical System</li> <li>• <b><u>Microscope Stand:</u></b> Z-focus drive with coarse step of 10 nm or more with adjustment limit stopper, high sensitivity fine focus knob with minimum adjustment gradation <math>1\mu m</math></li> <li>• <b><u>Nose piece:</u></b> Motorized Removable 7 position revolving nosepiece with a slot for analyzer slider.</li> <li>• <b><u>Observation tube:</u></b> <math>30^\circ</math> inclined Trinocular Observation tube, light path selector between eye port and camera port 100:0; 0:100; 20:80. (FOV 22mm)</li> <li>• <b><u>Mechanical Stage:</u></b> Hard Ceramic coated XY mechanical with coaxial stage right hand low drive XY control with dual glass slide holder.</li> <li>• <b><u>Condenser:</u></b> Swing-out condenser with built-in Iris Diaphragm (NA 0.9).</li> <li>• <b><u>Illumination:</u></b>, powerful transmitted white LED illumination with built-in-Koehler illumination, light intensity LED indicator with Light intensity Manager switch.</li> <li>• <b><u>Accessories:</u></b> Low auto fluorescence 30 ml immersion oil</li> <li>• <b><u>Objectives: (FOV at least 22mm)</u></b> <ul style="list-style-type: none"> <li>➤ Plan Achromat objective 4X, (NA- 0.10)</li> <li>➤ Plan Semi Apochromat objective 10X, (NA-0.30)</li> <li>➤ Plan Semi Apochromat objective 20X (NA 0.50)</li> <li>➤ Plan Semi Apochromat objective 40X (NA 0.75)</li> </ul> </li> </ul>	

- Plan Extended Apochromat objective 100X (NA - 1.45, Oil immersion)

- **Reflected Light Fluorescence:** 130 watt mercury lamp with 2000hrs life time for fluorescence observation with Motorized 6-8 position filter turret and the following fluorescence filters-
  - DAPI Filter (for blue)
  - Spectrum Green or FITC Filter
  - Spectrum orange or TRITC or Texas red Filter.
  - Dual Exciter Filter for Spectrum Green/Spectrum Red.
  - 0.5 X adapter

**ACQUISITION SYSTEM:**

- Acquisition of only required region. Adjustable region of Interest in acquisition
- Capturing by one mouse click and the whole process is performed under the same software platform.
- Automatic camera and image capture control with manual override function.
- Display optimization for maximum display contrast.
- Gallery of recently acquired metaphases available within the capture/ application window
- Automatic image enhancements.
- Camera : 5 MP or higher camera with pixel size of 3.45 μm and 35 fps, USB, Firewire or Gigabit ethernet interface. PC should come from the the manufacturer except the monitor

<b>Computer Specifications:</b>	
Standard Features	Mini-tower orientation or compatible.
Processor	Intel® Core® Processor i5-3550 (3.3GHz, 6MB)
Memory	Memory : 4GB (1x4GB) 1600MHz DDR3 Non-ECC
Hard Drive	500GB or more (7200RPM) 3.5inch Serial ATAII 3Gb/s
Optical Drives	16x DVD+/-RW Drive
Video	Intel® Integrated Graphics
Speakers	Internal Business Audio Speaker
Power Supply	Standard 275W
Mouse	3 Button USB Scroll Optical Mouse
Keyboard	(QWERTY) USB keyboard
Operating System	Microsoft® Windows® 7 Professional 64Bit English Operating Systems
Power cord	US / Europe (as defined in order)
Media	MUI Windows 7 Professional (64Bit OS) Resource DVD. Or above
Monitor	24" TFT Monitor
Standard Features	Mini-tower orientation or compatible.

**DATABASE:**

- Single database for all applications .
- Modern paperless laboratory design management software should be included.
- Workflow oriented database user interface, includes all the information about the patient demographics, images, results, etc.
- Centralized server with better network accessibility and data integrity.
- Capable to integrate with LIS (Laboratory Information System) of the institute/organization.

- Multi-site connectivity: Single database can support multi-site installations without the need to transfer data between workstations.
- Ability to assign levels of security for user access.
- Ability to associate with any external documents (pdf,word,xml etc).
- Combined gallery view of all image types capture for a case, giving the user the ability to choose multiple images side by side viewing.
- Any replaced or new image added should be updated in the gallery and in the database.
- Capable to export acquired image as clipboard image.
- Capable to import external images.
- Image processing history to be saved with date and time of each modification .Audit trails and logging is required for case, slide and cell status modification
- Ability to migrate cases from various versions.
- Search mechanism by any case or slide field or combination of any fields even when archived.
- User notification of the next “To Do” item according to roles & permissions.
- Ability to generate highly configurable customized reports with hiding sex chromosomes (for prenatal tests).
- Easy and unlimited data archival and retrieval.
- Automated data maintenance.

**KARYOTYPING SOFTWARE:**

- Software licence for multi species for karyotyping of different animal species.
- Ability to handle G-,R-,Q- banding, polyploid cells and markers
- Ability for multiple users to perform analysis on individual images within the same case simultaneously, for faster analysis of an urgent case
- Support of ISCN ideogram with 300, 400, 550, 700 and 850 band resolutions.
- Ability to work in any workspace .
- Machine learning algorithm for the classification of each chromosome and arrangement in the karyogram per laboratory samples.
- It Should be FDA approved.
- Should have magic tool. . A single tool must be used to select, de-select, separate touching and overlapping chromosomes, cut, join, delete or add parts of chromosomes, rotate or move the chromosomes etc in metaphase as well as in karyotype workspace.
- Merge as many regions or chromosomes as required with automatic detection of chromosome contours to be added.
- Easy to Move chromosomes. Drag and drop chromosomes to desired locations . Drag all chromosomes of a class at once.
- Simple chromosome Rotation using the mouse scroll wheel.
- Localise Marker Chromosomes in Karyotype view
- Automatic counting of chromosomes with minimal adjustment to complete full chromosome count . Additional tools for counting chromosome. Incorporate the sex chromosomes within the count tool for a display of both the model number and sex.
- Annotate chromosomes as well as ideograms. Free text annotation, and markups, with different colors and shapes can be added to metaphase and karyogram images.
- Ability to prepare the customised ideograms.

- Ability to perform chromosome segmentation operations within a single tool without additional key board strokes or mouse clicks to switch to a different tool function, with more than 10 different operations.
- All contour editing and segmentation operations, including addition of missing telomere regions, can be done within the karyotype window.
- System can automatically present a single karyotype of multiple patients (like family members) with all chromosomes included side by side for each class.
- Karyotype arrangement is adjusted automatically based on content of chromosomes, even if chromosome size is larger than standard size of the group or 10 or more chromosome are in the same class
- Expand or shrink specific chromosome boundaries by keyboard short key
- Accurately estimate the band resolution of metaphase.
- Case Report summarizing karyotype of all cells aberrations for immediate view of clones and common aberration.
- Should support various species karyotype and be open system to add more species as and when required.

**FISH SOFTWARE:**

- Support of motorized microscopes (filter block, change focusing, shutter).
- Automatic protection of filters by blocking light path after timeout. {Applicable to motorised turret/ filter wheel}
- Automatic XY coordinate readers for relocation to save time and contribute to a paper free lab environment. {Applicable to stage with XY reader}
- Acquisition of only required region.
- Up to 12 fluorochrome channels per image.
- Handles metaphase, interphase and tissue samples with two, three or more probes.
- Automated background correction.
- Real time focus control.
- Extended focus image generation from focus image series.
- Immediate true color image display.
- Easy combination of transmitted light and fluorescence information in color image.
- Image registration of color components, automatic or interactive.
- Annotation capabilities, text and arrows.
- Distance and area measurement functions.
- Integrated fluorescence intensity measurement.
- Color modification and reassignment functions.
- Full Karyotyping capabilities for karyotyping of FISH probes.
- Pseudo color display functions for simultaneous display of more than 3 fluorochromes.
- Expand manual microscopes with motorized Z-axis control
- Exporting 3D scanned data for external 3D analysis and visualization.
- Ability to repeat acquisitions with pre-defined time gaps.
- Integrated with powerful bioinformatics management with simple,easy,quick and reliable manual analysis of FISH sample. Quality results leveraging double blind multiple technologists scoring.Efficient classification of signals with audible feedback.
- Ability to measure intensities of telomeric probes.
- Should be FDA approved.
- Same system should be upgradable to IHC imaging and analysis.



## Group-F: Biochemistry

### 01 DIGITAL MAGNETIC STIRRER HOT PLATE

1. Max Speed: 1400 rpm or more
2. Stirring Capacity -20Liters of water or better
3. Dimensions (W x L x H) in mm- (270-280 x 170-175 x 90-95)
4. Speed Accuracy:  $\pm 2$  rpm
5. Heating Power: 750-800W
6. Digital display and input
7. Hot Plate Temperature: ambient to 500°C
8. Hotplate Temperature Accuracy:  $\pm 5^\circ\text{C}$  Temperature
9. Hot Plate Diameter: 140-145mm
10. Weight bearing 5 kg
11. Platform size: 18 cm x 18 cm
12. Microcontroller based temperature control Option for temperature accuracy with external temperature sensor- $\pm 1^\circ\text{C}$
13. Plate material should be chemical resistant with Silumin Ceramicized coating provision. An independent safety circuit with separate circuit switches off the heating if the normal hotplate temperature is exceeding by 25°C;
14. Supply Voltage: 230V/50Hz
15. Instrument should have CE certification Protection class- IP32
16. Should be supplied by at least 10 PTFE /Teflon coated magnetic stirrer bar of standard sizes 2X6mm, 8X14mm, 6X10mm, 8X22mm, 6X30mm, 6X50mm each in oval, round and polygonal shape.
17. Should be supplied with 2 magnetic retriever.
18. Quote for the price of CMC/AMC per year after the expiry of standard warranty minimum 3 years

### 02. ORBITAL SHAKER WITH ROCKING ACTION

Speed	10 - 300 RPM OR MORE including stir reverse
Timer	1 min - 99 hours w/Alarm or Continuous
Orbit	35mm
Selectable Ramp Rates	10 - 100 rpm/sec
Platform Dimensions (D x W)	460 x 460mm (18 x 18in)
Overall Dimensions (D x W)	590 x 500mm (23 x 20in)
Maximum Load	12 Kg (26 lbs.)
Weight	21 Kg (46 lbs.)
Display	digital
Angel tilt	10 to 60°

Accuracy	± 5rpm at 100rpm
Certifications/Compliance	CE
Load Bearing Capacity (Metric)	5kg
Power supply	50 Hz ,240V
Brushless D.C. motor driven & Low noise	
Compact design ideal for placing in incubators (non-CO2), chambers and refrigerators (up to 60°C). PID control ensures consistent and smooth rocking motion	
Dimpled mat (tray, silicone pad, two securing bands) must be included	
Quote for the price of CMC/AMC per year after the expiry of standard warranty minimum 3 years	

### 03 Gel Documentation System Gel Doc System Hardware

1. System should have Image resolution >4 mega pixels for resolving closely spaced bands on a gel or blot.
2. System should have at least 4.6 x 4.6 µm pixel size & greater than 3 orders of linear dynamic range
3. System should be completely automatic where users would not need to zoom, focus, adjust aperture or select light source.
4. System should be modular with different sample trays & flexible to image a wide variety of applications, including nucleic acid, visible dyes, SYBR safe and Stain Free Gels.
5. System should have UV, White light, & optional Blue light.
6. System should have Stain-Free capability for stain-free gels and blots
7. Sample trays should be customizable per user and recognized automatically.
8. System should accommodate a large portfolio of detection methods: ethidium bromide, SYBR® Green, SYBR® Safe, SYBR® Gold, GelGreen, GelRed, Fast Blast™, SYPRO Ruby, Flamingo™, Oriole™, CY3, rhodamine, green fluorescent protein, Hoechst, Krypton, silver stain, copper stain, zinc stain, Coomassie Brilliant Blue, Coomassie Fluor Orange, and other spectrally similar stains, labels, and dyes.
9. Should have lens flat-fielding calibration for each sample tray to deliver image data that are always optimized and reproducible without imaging artifacts, providing superior image uniformity and quantitation
10. System should be compact and maximum size of WxLxH of 35 x 50x 45 cm.

### Gel Doc System Software

1. Software should have highest level of automation in hardware calibration, image optimization, capture, and analysis.
  2. Should have automated workflow recorded in a protocol file from image capture to results.
  3. Should ensure optimized image data and analysis from a gel in a single uninterrupted, fast, and completely reproducible workflow.
  4. Should have automated image capture driven by a selected gel or blot application.
  5. Should have one-button acquisition from image capture to result.
  6. Should generate the publication ready images (dpi, dimension and format) with one click export option.
  7. Should have feature for Automatic print when only imaging and printing is required.
- Software should have easy copy/paste functionality, crop, zoom, 3D and colors options Quote for the price of CMC/AMC per year after the expiry of standard warranty minimum 5 years

### 04 WATERBATH

1. Should have a double walled construction.
2. The inner chamber and top lid should be made of stainless steel.
3. The space between the two walls should be packed with thick glass wool.
4. Should provide with a microprocessor based variable digital temperature controller with digital display.
5. Working temperature should be from ambient to 100°C having an accuracy of +/- 0.5°C
6. Should have an approximate inner chamber dimension of 450mm x 300mm x 175mm

7. All heating elements should be sealed inside properly and bay area should be clear.
8. Metal balls for heating should also be provided.
9. Quote for the price of CMC/AMC per year after the expiry of standard warranty minimum 3 years

<b>05 pH METER</b>	
1.	Complete unit with electrode holder stand, double-junction glass pH electrode, ATC probe and power adapter
2.	LCD display shows mode, indicators and help messages etc
3.	5/6 points calibration with auto-buffer recognition
4.	pH: Range -2.00 to 16.00 pH, pH Resolution 0.01, Accuracy $\pm 0.01$ pH
5.	mV: Range +1999 mV, Accuracy $\pm 1$ mV ,Resolution 1mV
6.	Temperature: Range upto 100°C, Accuracy $\pm 0.5^\circ\text{C}$ , Resolution 0.1°C
7.	Two extra pH electrodes with compatible of above pH Meter 100ml storage Solution. 500ml electrolyte fill solution. Calibration buffer solution 1000ml of pH 2.0, 4.1,7,9.1,11.0 & 16.0 .
8.	Buffer recognition: NIST and USA
9.	Microprocessor based: Yes
10.	Memory: Up to 100 data sets
11.	Warranty: 03 years from date of installation
12.	Quote for the price of CMC/AMC per year after the expiry of standard warranty

#### **6. MICROPIPETTE 1- 10 $\mu$ l variable Vol.**

1	Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
2	Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3	Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
4	Calibration certificate must be provided with each pipette.
5	Accuracy and Precision values should be those laid down in the ISO 8655 standards.
6	Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
8	Variable Volume Pipette: 1-10 $\mu$ l
9	Increments [ $\mu$ l]: 0.01
10	Volume [ $\mu$ l]: 1.0 to 10.0
11	Accuracy ( $\pm$ ) %: 2.5 to 0.7

1 2	Precision ( $\pm$ ) %: 1.5 to 0.3
1 3.	3 years on-site warranty and half yearly maintainenace

### MICROPIPETTE - 10-100 $\mu$ l variable Vol.

1	Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
2	Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3	Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
4	Calibration certificate must be provided with each pipette.
5	Accuracy and Precision values should be those laid down in the ISO 8655 standards.
6	Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
8	Variable Volume Pipette: 10-100 $\mu$ l
9	Increments [ $\mu$ l]: 0.1
1 0	Volume [ $\mu$ l]: 10 to 100
1 1	Accuracy ( $\pm$ ) %: 0.6 to 1
1 2	Precision ( $\pm$ ) %: 2 to 0.3
1 3.	3 years on-site warranty and half yearly maintainenace

### MICROPIPETTE - 1000 $\mu$ l variable Vol.

1	Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
2	Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3	Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
4	Calibration certificate must be provided with each pipette.
5	Accuracy and Precision values should be those laid down in the ISO 8655 standards.
6	Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
8	Variable Volume Pipette: 100-1000 $\mu$ l
9	Increments [ $\mu$ l]: 0.5
10	Volume [ $\mu$ l]: 100 to 1000
11	Accuracy ( $\pm$ ) %: 0.9 to 0.6
12	Precision ( $\pm$ ) %: 0.3 to 0.2
13	3 years on-site warranty and half yearly maintainenace

**MICROPIPETTE 0.1- 1µl variable Vol.**

1	Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
2	Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3	Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
4	Calibration certificate must be provided with each pipette.
5	Accuracy and Precision values should be those laid down in the ISO 8655 standards.
6	Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
8	Variable Volume Pipette: 0.1-1 µl
9	Increments [µl]: 0.005
10	Volume [µl]: 0.1 to 1
11	Accuracy (±) %: 2.5 to 0.7
12	Precision (±) %: 1.5 to 0.3
13.	3 years on-site warranty and half yearly maintainenace

S N	7. TECHNICAL SPECIFICATIONS FOR VERTICAL LAMINAR FLOW HOOD
1.	Cabinet should have High Efficiency Particulate Air (HEPA) of 0.3µm with an efficiency of 99.97% removal.
2.	Cabinet should have -pre-filter (10) of dry fiber (washable) with the frame on all the sides.
3.	Velocity at the output of HEPA is 90 + 20 FPM.
4.	The front and side panels should be of 4mm thick and made up of transparent glass (Polycarbonate/tuffen).
5.	Instrument should be equipped with Digital Manometer and Gas cock.
6.	Lighting in the chamber should include Fluorescent and U. V. Light. And automatic light off and on features.
7.	Laminar should have statically balanced motor blower assembly (Heavy Duty).

8.	External dimensions should be 1350 mm W X 880 mm D X 1300 mm H (approximate).
9.	Working area size (In Ft.) 4' X 2' X 2', Stainless steel
10.	The total cabinet should be mounted on heavy duty solid adjustable legs (duly epoxy powder coated). Should be corrosion resistant.
11.	Power requirements 230V, 1 Phase, 50 HZ, AC supply.
12.	Warranty 03 Years, Should Conform to International Standard ISO. A minimum of three year AMC should be mentioned. All installation and repair to be done by the supplier.

<b>08 THERMAL CYCLER</b>	
Block format	96 x 0.1ml PCR Tubes and 96 x 0.2 ml PCR Tubes
Thermal block	Aluminum
Gradient PCR	Capable of testing at least 10 or more different temperatures simultaneously across a gradient range of 1 - 20° C
Gradient technology	Identical ramp rate during both gradient and normal operation
Temperature range	4°C – 99 °C
Gradient temperature range	30°C – 99 °C
Block temperature accuracy	±0.2°C
Ramp rate	≥3 °C/sec (heating) ≥ 2 °C/sec (cooling)
Screen display interface	Intuitive Graphic Programming
USB ports	Protocol transfer, Self-test, USB, printer/mouse
Power supply	230 V (50Hz - 60Hz)
Warranty	3 years
<p><b>Other important requirements:</b></p> <ul style="list-style-type: none"> <li>● PCR system should hold the block temperature below room temperature unless the lid reaches to its maximum set temperature.</li> <li>● Instrument status should indicate the progression i.e step, cycle and remaining runtime during the run.</li> <li>● Lid Temperature range: 37 – 110 °C</li> <li>● Block Homogeneity: 25° C to 72° C ≤ ±0.3° C , 95° C ≤ ± 0.4° C</li> <li>● Lid must be flexible to adjust automatically (not manual setting) with the different PCR tube height (Flexible to use both dome and flat top PCR tube)</li> <li>● Should have pre-programmed protocols, log book function for error messages and new calibration.</li> <li>● Auto Restart facility/function with user defined time interval is desired.</li> </ul>	

- Should have e-mail notification for easier documentation
- Instrument should have the block option / provision for *in-situ* PCR in slides
- Calibration according to NIST (USA), DKD/PTB (Germany), UKAS/NPL (UK), UL/CUL listed.
- System must have license for gradient application.

## 9. Composite Cytogenetics Imaging Workstation with Motorized Upright Fluorescence Research Microscope

### Microscope Stand:

Motorized Z-focus drive with minimum step resolution of 10nm-15nm with dedicated TFT touch screen. 8- 10 Position motorized fluorescence filter turret, 6-7 position motorized nosepiece facility with slot for DIC. **Observation Tube:** Trinocular Observation tube with inclination angle of 30 degree. Field of view 22mm or more. Three way light distributions of 100:0/20:80/0:100.

### Condenser

Swing-out condenser suitable for all magnifications.

### Revolving Nosepiece:

Motorized nosepiece with a slot of minimum 6-7 positions with DIC slot.

### Eyepieces

Paired Wide field Eyepieces of 10X with minimum field of view about 22mm or better, focusable & adjustable diopter setting.

### Illumination:

12V 100W transmitted Halogen illumination or high transmitted LED with Life span minimum of 25,000 hours.

### Objectives

Plan Apochromat 4x/5x Plan Apochromat 10x/0.40

Plan Apochromat 20x/0.75 (Spring) Plan Apochromat 40x/0.90 (Spring)

Plan Apochromat 60x or 63x /1.35 to 1.4 (Oil, Spring) Plan Apochromat 100x/1.40 (Oil, Spring)

Automatic change in objectives or filter turret should be recognized by the system and the system should automatically align the components.

### Mechanical Stage

The stage should be motorized with autoloader and automated metaphase finder.

### Fluorescence Attachment:

It should have 8-10 position or better reflector turret mount for mounting different filter cubes.

### Fluorescence Illumination

High Intensity 130W Mercury or 120W metal halide Illumination. The light source should be fiber coupled to the microscope with lifespan of at least 2000 hrs.

### Fluorescence Filters

Complete fluorescence filter set for all FISH Applications

(a) One complete filter block for DAPI

(b) One complete filter block for FITC

(c) One complete filter block for TRITC

(d) One complete filter block for FITC/TRITC (Dual Band)

(e) One complete filter block for DAPI/FITC/TRITC (Triple Band)

(f) One complete filter block for Spectrum Aqua/Gold All the filters should be narrow band pass filters.

### Cytogenetics Imaging Workstation Monochrome CCD Camera

- Digital CCD camera with high sensitivity and low noise.
- Chip size should be 2/3"
- High resolution of 1360x1024 pixels with pixel size of 6.45 x 6.45um

- Digitization depth – 12 bit
- Frame rate of 12-17 frames per second (fps) in full resolution C-mount adapter 0.63x to 1x

### **Karyotyping & Fish System with Software**

- **Database Management Software** – A modern paperless laboratory design management software. Manage data, compare chromosomes and produce comprehensive reports to ensure optimal chromosomal analysis statistical analysis and cross-case comparison of all the data. As a powerful search tool to filter specific cases and cells by any field and/or subtext. A flexible image gallery for viewing of all case images. Support multiple languages, Thumbnail images of RAW, Processed FISH or completed images should be seen in database, The utility to create a report from a freehand combination of chromosomes from any case/s and allow their enhancement with ideograms, comparison etc., generate highly configurable customized reports (Word/PDF).
- **Software for Karyotyping analysis** - Ability to handle G-,R-,Q- banding, polyploid cells and markers (both bright field and fluorescent metaphases), automatic contour to widen and shrink the chromosome in one click, ability to add missing telomeric regions directly in karyotype view, ability to score, count and analyze chromosomes, Ability to display spine and centromere of all chromosomes, annotate and prepare the customized ideograms, Support of ISCN ideogram with 300, 400, 550, 700 and 850 band resolutions, Advanced automation offering background uniformity correction, automatic segmentation of touching chromosomes, optimized image enhancement, contrast and band sharpness,
- **FISH Software** – Ability for full karyotyping support with unique band enhancement and signal sharpening. Support for automated filter wheels, Z- stacking, Up to 12 fluorochrome channels per image, Handles metaphase, interphase and tissue samples with two, three or more probes, Extended focus image generation from focus image series, Full Karyotyping capabilities for karyotyping of FISH probes, Exporting 3D scanned data for external 3D analysis and visualization. Automatic Image exposure and enhancement, together with the auto- conversion of image sequences at various focal planes (3D Z- Stacking). Automatic background, contrast, brightness and sharpness adjustments, to enable optimal display of the faintest signals in a few seconds. Should have Spot counting feature
- Integrated quantitative signal and objective analysis module. Cell or object segmentation, followed by morphology and intensity analysis to extract the exact data required.
- Should compatible to Color Karyotyping upgrade
- Should compatible to mFISH/ mBAND upgrade

### **MULTI SPECIES KARYOTYPING SOFTWARE:**

To Support Multiple Species, any number of chromosomes, flexible karyotype template, should work under same karyotyping software as human with same capabilities and functions.

Support any number of chromosomes and classes, even hundreds of chromosomes in a karyotype.

Design of any number of lines and groups at each line in the karyotype.

Free definition of text for each chromosome class, including any option of sex chromosome.

Dynamic update of Karyotype, to support the most highly abnormal aberrations and ploidy without any need to change the karyotype design or template.

Supporting various staining schemes in bright field and fluorescence

Fast Training mechanism based only on a single to a small number of metaphases.

Multiple classifiers to support any animal and plant karyotype. Automatic karyotyping based on trained data, supporting ploidy.

Predefined Ideograms for several species with capability to add custom or additional Ideogram for new species.

### **Workstation**

Compatible latest branded computer Intel i5 processor 3.6 GHz with at least 4GB Ram, 500GB HDD, 1GB Graphic memory, Windows 7 professional 64 bit, 24 inch TFT screen, Compatible online UPS with 30 minutes backup to support the entire system.

### **Secondary Hard Disk**

Internal secondary hard disk capable or mirroring & backing up data

### **UPS**

3-3.5 KVA online UPS

### **Printer**

All in one color laser printer

### **Certificates**

Complete hardware system should be European CE/ European CE IVD/US FDA certified. Cytogenetic software should



be FDA/ European CE IVD registered.

**OPTIONAL:**

**SPECTRAL KARYOTYPING:**

**Features for MFISH software with compatible filter:**

- Ability to analyze chromosomes on colour/spectral properties.
- Precise and robust accuracy.
- Image to be captured in single focusing.
- Accurate quantification of nonspecific staining.
- Accurate background subtraction/correction.
- Invariant to dye intensity variation.
- Intuitive easy-to-use tools to analyze subtle rearrangements and complex translocations.
- Acquisition should provide interferometer based spectral data and its bandwidth should be under software control.
- Multi-function tool which eliminates the need for switching between other functional tools.
- **mCounter** – Counting by intuitive use of the mouse and keyboard to replace existing lab counters and to enable easy spot count for numerical changes, or classify cells according to their signal pattern, instantly providing statistics for customized reports.
- **Multi Species support:** Dynamic karyotype table to fit any species type. A predefined library for multiple species and capability to add

custom ideograms of animal or plant species.

## 10. DRY BLOCK HEATING INCUBATOR

**Exceptional Temperature Uniformity and Accuracy and hold six interchangeable modular heating blocks Block heater having capacity to maintain temperature 5 °C above ambient**

**Temperature range from approx. 5°C to at least 90°C Display:**

**Digital /LED display.**

**Microprocessor based controller with digital temperature**

**Temperature accuracy ± 0.2 °C or better.**

**Dimension (L x W x H) in mm: 200x280x100 (approximate)**

**Highly versatile with a large number of blocks accommodate test tubes, microcentrifuge tubes etc. 96-well plates, PCR plates and conical-bottom centrifuge tubes etc.**

**Power: 220-240 Volts/50Hz**

**With Dry Blocks 1.5mL × 20 tubes (one) Warranty least two years from the date of installation. Qty. required (in Nos.): 01**

# **Group-G: PMR**

## **1. CPM FOR SHOULDER ELBOW AND WRIST**

### **Technical Specification**

Single Stationed Electronic Rehabilitation for passive exercise of the shoulder, elbow and wrist joint for ensuring rapid post-operative recovery.

#### **Shoulder Joint:**

- Elevation range: 5<sup>0</sup>-175<sup>0</sup>
- Adduction/abduction range: 40<sup>0</sup>-130<sup>0</sup>
- Intra extra-rotation range: 90<sup>0</sup>-0<sup>0</sup>-90<sup>0</sup>

#### **Elbow Joint:**

- Extension flexion: 0<sup>0</sup>- 140<sup>0</sup>
- Prono-Supination: 90<sup>0</sup>-0<sup>0</sup>-90<sup>0</sup>

#### **Wrist Joint:**

- Flexion extension: 80<sup>0</sup>-0<sup>0</sup>-80<sup>0</sup>
- Ulnar radial deviation: 25<sup>0</sup>-0<sup>0</sup>-30<sup>0</sup>

#### **General:**

- The unit should have max. speed of 3<sup>0</sup>-3.5<sup>0</sup>/sec.,
- The unit should have laser pointer to ensure the correct positioning of the joint.
- The unit should have patient stop switch for patient safety.
- The unit should have control panel on the machine itself and not on the remote control for safety reasons.
- The single unit should be able to rehabilitate shoulder, elbow and wrist joints.
- The unit should be movable on castor wheels.
- The unit should be supplied with a memory card for running the program
- The unit should be capable of exercising spinal cord injury patients in supine position
- Automatic increase of breadth of movements on both limits
- Pause in both limits
- Warm-up cycles
- Unit height should be adjustable as per patient's requirement.
- Unit should be supplied with accessory trolley.
- Should be supplied with complete set of accessories required for passive movements of Shoulder, Elbow and Wrist.
- Power supply: 220V-230V~ 50-60 Hz.
- Should meet the international safety standards. CE/US FDA approved

## **2. Technical Specifications of CPM for Lower Limb**

- The unit should have digital keyboard with LCD display.
- Knee and Hip mobilization in the same unit.
- Ankle Mobilization is must in the same unit.
- Use of Memory Card
- Speed control during Flexion / Extension 6. Force control
- Work time control
- Automatic increase in Extension range
- Pause during flexion/ Extension

- Automatic increase in Flexion range
- Warm up Cycles.
- The unit should have got functional panel on the unit only, but not on the patient stop switch or remote control for patient safety.
- Knee movement breadth: 0deg – 110deg
- Ankle movement breadth: 20deg to (-) 40deg
- Hip movement breadth (mid limb) : 10deg – 70deg
- Speed: 0.80/sec – 4.60/sec
- Force: 0 – 40 kg
- Power supply: 85 – 260 V / 50-60 Hz
- Electrical safety: Class 1 B Standard EN 60601-1
- USFDA/European CE certify

### 3. Four Station Multi Gym

#### TECHNICAL SPECIFICATIONS

Number of Stations	-	4 Station
Operation Mode	-	Adjustable
Maximum Resistance	-	150-200 lbs
Frame Structures	-	2"*2" ms tube frame
Weight Stacks	-	Pvc Coated
Pulley	-	Nylon Bearing Loaded
Cushioning	-	1.5" to 2" thick Dunlop leather Covered
Material	-	MS
Frame and Finish	-	Electrostatic Powder Coated Frame

### 4. PRP Centrifuge Machine

#### TECHNICAL SPECIFICATIONS

Automation Type	-	Semi-Automatic
Timer	-	Digital
Speed Indicator (RPM)	-	Digital (Microprocessor)
Display	-	LCD
Speed Range	-	500-4000 RPM
Voltage	-	220V
Rotor to Adopt 4 PRP Kits		

### 5. Dynamic Stair Trainer

#### TECHNICAL SPECIFICATIONS

Stair width (regular)	-	74 to 80 cm
Stair height range	-	0 to 16.5 cm
Max Length with regular slope	-	250 cm
Max Width	-	90 cm
Capacity	-	300 kg
Operating Interval	-	2 min on / 18 min off

## 6.Examination Couch/Multipurpose Couches

**The Treatment couches should have the following features:-**

- Height adjustment from 45 to 95 cm Three section(Hydraulic)
- Possible position: Sitting, Lying, Flexion & Trendelenburg.
- Breathing hole and plug.
- Separate leg section.
- Durable, Hygienic and washable upholstery with comfortable padding also around the sides of table top.
- Should be easy to move with retractable castors.
- Lifting capacity should be more than 145 kg. With Hydraulic Pump Force of 10 N.

## 7. Combination Therapy, Ultrasound with all types of currents.

**Specifications:** Combination therapy should comprise of Ultrasonic Therapy and Electrotherapy having all types of currents for therapy purposes. The machine should have the capability to give each therapy simultaneously or separately.

**Ultrasonic therapy component:**

- It should have multi frequency treatments head.
- It should have two different treatment heads one with large treatment surface (4 to 5 cm<sup>2</sup>) and one with a small treatment surface (0.8 to 1.0 cm<sup>2</sup>).
- The treatment heads should have clear visible contact control recognition which ensures accurate dose measurement and the correct treatment time.
- Frequency of Ultrasound: 1MHz& 3 MHz
- Output: Continuous & pulsed
- Intensity: 0-3 watts/cm<sup>2</sup> in steps.
- Timer range: 0-15 minutes
- Control contact for head: Automatic power switch off & treatment time interruption when having insufficient contact to the part

**Electrotherapy Component:-**

- It should have all low and medium frequency current types: High Voltage Currents, Interrupted Galvanic Current, Faradic Rectangular & Triangular Current.Etc
- Should have two separate channels for synchronous stimulation of muscle groups.

- Should have preset treatment protocols for common conditions with memory to store data.
- Should have color LCD screen display the parameters.
- Should have ability to use the two channels separately in different current patterns that can be applied on two different patients.

**General:**

- The machine should be supplied with all the necessary cables and accessories included in the price to run and perform all the above functions.
- The system should work on AC 220 V, 50 Hz.
- It should comply with national/international safety standards.
- Warranty of 2 years and additional CMC/AMC for further 3 years should be quoted.

**8. Treadmill**

Heavy- duty Exercise Treadmill with computerised exercise electrocardiographic system

- Clear LCD colour display (14" or more) of speed, elevation, heart rate, 15 leads exercise ECG etc.;
  - Arrhythmia detection;
  - Full front and side handrails;
  - Customizable stress reports;
  - Zero start for slow build-up of speed for safe and smooth operation ;
  - Should be able to be slowed to a gradual stop, or stopped immediately with the standard emergency stop Button;
  - Running belt, 18 inches or more wide, 54 inches or longer, strong for heavy duty even in obese patients;
  - Drive Motor power 3 HP or more continuous duty and at least 5 HP peak power.
  - Belt speed range 0 to 16 km/hr or faster with zero km start up and gradual increment adjustments; Belt Speed Acceleration/Deceleration about 0.8 km/sec (0.5 mph/sec);
  - Elevation Range: 0.0 to 20.0% grade or higher, continuously variable; Elevation Range Increase/Decrease: About 1%/sec
  - Automatic Protocols: more than 10 exercise and rehabilitation protocols each (including Bruce, Naughton, Balke, low performance etc.);
  - CD archive;
  - UPS system: standard input and output cables, and operable at 220V AC 50 Hz
  - ECG printouts Paper packs;
- Should confirm to CE or equivalent safety standards

**9. Unweighing support system For gait-training**

- Should have dynamic suspension system to maintain consistent unweighing during walking or running.
- Should have open, unobstructed frame to allow clinician easy access to manually assist placement and timing of the lower extremities.
- Should have light weight, high strength frame to make it easy to move around.
- Should have large, easy roll locking casters.

- Should have removable and adjustable arm supports.
- One system should be able to accommodate children as well as adults.
- Should have choice of support vests accommodates all size patients.
- The unit should have weight uplifting capacity of up to 140 kg
- Should be supported by battery power as well as 220V AC 50 Hz

Should confirm to CE or equivalent safety standards.

## 10. Microwave Diathermy and Traction Combination Unit for Cervical and Lumbar Pain Rehab

### Specifications:

- Equipment should be consisting of lumbar traction with microwave diathermy under the couch; the equipment should also have cervical traction and upper or lower limbs traction facility.
- The Equipment should be capable of giving the traction and or microwave diathermy simultaneously or separately to the patient on the same couch.
- Digital displays for traction force and treatment time & microwave power.
- The traction unit consists of a couch, hand held upper trunk stabilizer & pelvic harness with spreader bar

#### Lumber traction:-

- Traction force adjustable between 0-60 kg. (Adjustable)
- Traction holds time setting of 0-5 min. (adjustable)
- Release time setting 0 to 5 min. (adjustable)
- Treatment time of 0-60 min. (adjustable)

#### Cervical traction:-

- Traction force adjustable between 0 -15 Kg.
- Traction modes: Intermittent, static and others

#### Microwave diathermy:-

- Microwave power output should be:
  - a. Continuous 250 Watts or more
  - b. Pulsed 1500 Watts or more
- Microwave unit should be able to easily slide under the couch for easy positioning and should have in-built emitters of microwave for penetration through the slits in the couch itself.

#### General:

- All Accessories, cables etc. should be supplied with the machine, including adjustable flexion stool, nylon cord, head halters for cervical traction of three different sizes.
- The machine should have an emergency shutdown switch accessible to the patient taking treatment.
- Power supply: 220 V / 50 Hz.
- Equipment should meet international safety standards like CE etc.
- Warranty (CMC) 5 years, it should include software and hardware replacement and upgrades. AMC for the next 5 years after CMC should also be quoted.

## 11.NERVE STIMULATOR

### The unit should have the following Specifications:

- Should be suitable to identify peripheral nerves and giving percutaneous stimulation in neuro muscular block.
- Should have a percutaneous monopolar/ bipolar stimulating handle for localization of nerves without puncturing the nerve which should be autoclavable.
- Should have selectable stimulation intensity ranging from 0-60mA in steps 0.1mA with stimulating handle and stimulation impulse width from 0.3ms, 0.5ms and 1.0ms
- Should continuously measure & display actual current passing through the patient and selected current.
- Should have pause function to interrupt stimulation without delivering impulses test function
  - Should automatically switch off with an acoustic warning if not operated over a period of 20 mins
  - Should have LCD display for stimulation current, impulse pattern, pulse width, impulse amplitude.
  - Should have analog and digital display of selected current and actual current
  - Should have membrane touch pads for choosing stimulation function
  - Should be small (pocket size) & light weight.

**Should be supplied complete with:**

- Percutaneous Stimulating Handle
- Cable for invasive and percutaneous nerve stimulations
- Plexus Cannula with Thin polymer insulation coating (Teflon coating not desirable) 22G, 24G, 25G - 10 nos. Each
- 9 volt rechargeable battery with charger.

**12. Tilt Table (Motorized)**

- **TILT TABLE**
- **Specifications:**
- 1) Table should have electric height adjustment control via remote from 46 to 84 cm 2) It should have electric tilting control via remote.
- 3) Both control can be adjust by two function hand remote.
- 4) Table should tilt full 90 degree.
- 5) Tilt tables motor should have approximate 12- 14 mm/sec speed at unloaded and 6 -7 mm/sec speed at full load.
- 6) It should have Battery Back-Up to bring the patient down in case of power failure
- 7) It should have facility of lowers to wheelchair height
- 8) It should have good quality large braking castors
- 9) It should indicate tilt angle.
- 10) Table should have minimum 200 kg weight barring capacity of patient.
- 11) Table top should have minimum 61cm wide x 198cm long x 80cm high
- 12) Table should have minimum Three fixation belts:- Thoracic, Pelvic, Knee
- 13) Table should have work table attachment and Can also be used as general examination & treatment couch.
- 14) Should be USFDA or European CE certified.
- **Use: for Regularization and prevention of orthotic Hypertension / Hypotension in chronic bedridden patients of spinal cord injury patients.**

**13. Electromyography and NCV System**

**Specifications:**

Portable EMG (2 Channel) and Nerve Conduction Velocity (NCV) system connectable to USB port of a computer. Complete with laptop computer and LASER Printer. Computer along with the necessary software to run the system on the computer should be supplied along with the equipment. Software to view and print the report on the Microsoft Office should also be supplied. Preference shall be given to the equipment made in India with service facility available locally.

**EMG System:**

- Number of channels: Two
- Sensitivity: 0.1 micro-volts to 10 milli-volts/division selectable in multiple steps.
- High and low cut frequency filters in different steps.
- Sweep Speeds selectable from 1 milli-second to 1 second/division in multiple steps.
- Noise level: less than 1 micro-volt.
- Average for each channel up to approximately 1,00,000.
- The system should have a battery back-up either in-built or supplied with UPS with spike filter of adequate rating to run the system.

**Electrical Stimulator**

- Hand held electrical stimulator.
- Start, stop and save switch facility separately on the hand held stimulator itself.
- Voltage range: 0-300 Volts.
- Current range: 0.01-1 milli-second.
- Repetitive stimulation facility should be adjustable in steps.

**Standard Accessories must be supplied with the system:**

- Surface electrodes: 100
- Ring Electrodes for Sensory: 4
- Unipolar EMG needle electrodes complete with connecting wires: 20
- Bipolar EMG needle electrodes complete with connecting wires: 10
- Headphones: one set. With noise cancellation padding. Frequency response: 20-20,000 Hz.
- All cables to and electrodes that are required to make the equipment fully functional should be supplied as Standard Accessory.
- Electrode conductive gel: 10 bottles of minimum 200 gm each.

**Computer**

Laptop computer with Windows 8.1 or higher (latest version of the operating system, at the time of supply of the equipment), should be included. The computer should be compatible to run the hardware and software of the EMG/NCV system. The computer should have the following minimal specifications:

- Display resolution should be minimum: 1366x768
- Processor: Intel Core i3 or higher dual core processor or better processor with 2 GHz or faster clock speed with HD Graphics adaptor.
- RAM: 4 GB minimum.
- Touch pad input with additional optical mouse.
- Hard Drive: 500 GB minimum.
- Optical Drive: Dual layer DVD writer.
- Ports: Total USB ports should be 3 minimum out of which at least one port should be USB 3.
- Other ports: HDMI, VGA and RJ 45 ports.
- Battery life: More than 4 hours.

**Software:**

- Genuine operating system as described above.
- Complete System software for EMG, NCV to capture, display, store and print the data and for generating reports. Optical disk of the software should be supplied along with the system. The software should include a guide as well as a complete manual.
- Genuine Microsoft office, latest version to generate and print the report having Word, Excel and power point.

**Printer:** LASER jet printer (monochrome) compatible to print reports on A4 size sheet with 1200dpi rating.



**Trolley:** Wheeled trolley with locking facility along with flexible stand to house the system and the computer should be supplied along.

**Onsite training:** The vendor should provide onsite training to the user for the use of the equipment.

**Scope of Supply:** Complete list of items to be supplied in the main order (scope of supply) should be indicated. This list should be comprehensive and include all items as listed above besides anything that may be required to run the system. The equipment should be fully functional in the scope of supply. Any item which may be essential to run the system should not be listed in the 'Optional accessories' and charged for separately but should be included in the basic price of the equipment.

**Electric Supply rating:** The equipment should be able to run on 220V AC 50Hz supply.

**Warranty:** CMC for 5 Years should be included in the cost. Rates for the subsequent CMC for further 5 years (for Years 6-10) should also be quoted separately.

**Optional Accessories:**

Rates for additional Surface Electrodes, needle electrodes, wires or other optional accessories should be quoted separately.

**Warranty:** Five years' CMC should be included in the cost. Additional CMC/AMC for a further period of five years should be quoted.

**Certification:** CE/BIS/Electrical Safety certificates should be a must.

#### 14. OT TABLE MANUAL HYDRAULIC

##### TECHNICAL SPECIFICATIONS

1. The table should have minimum 4 sections
2. The table should have easily detachable split leg and easily detachable head section.
3. The table top should have a minimum height of 765mm or lesser.
4. The table top should have a minimum vertical stroke of 250mm
5. Should have sealed hydraulic mechanism to avoid oil spillage.
6. Should have at least 25° trendelenburg and reverse trendelenburg
7. Should have at least 20° lateral tilt movement
8. Should have at least 80° back up movement with gas spring mechanism.
9. The head section should have up and down movement.
10. The leg section should have 90° down movement and should move side wards to a minimum of 90 degree.
11. The table should have a heavy and sturdy base and compact to provide adequate foot room for the operating team.
12. The table should be mounted on heavy duty casters which offer enhanced weight bearing capacity and free mobility
13. The table should have a single lever foot operated brake pedal
14. Should have a minimum patient weight bearing capacity of 100 Kgs.
15. Base should be made of cast iron and all other parts and accessories should be completely made of Stainless Steel 304 grade except the cushion, gas spring and hydraulic system which should be made of any non-resting metals like brass etc.
16. The table should be supplied with the following accessories.

17. Mattress for the complete table top in sections-1 set
18. A pair of arm boards with pad and fixing clamp - 1
19. A pair of padded shoulder support with clamps - 1
20. A pair of padded lateral support with clamps - 1
21. A pair of leg crutches with clamps - 1
22. Anesthetic screen frame with clamp - 1
23. Patient restraint strap - 1

#### **15.OT LIGHT:**

#### **TECHNICAL SPECIFICATIONS**

- 5 in 1 Slim Single Dome.
- Sterilisable Handle for focusing
- Field depth – 800 mm / Field Dia. 200 mm
- Dome Diameter – 630 mm
- Model Available with Light Output - **90,000 Lux** ( Aluminium Reflector)
- and Model with Light Output 1,30,000Lux( S50Glass Reflector)
- 12 V 50 W Halogen Bulbs / Variable Intensity Control Unit
- Mounted on castors for easy movements.
- IEC, ISO Certified.

#### **16.Semi Fowler Beds**

#### **TECHNICAL SPECIFICATIONS**

- Frame work made of Rectangular M.S tube
- 2 Section Top made of perforated M.S Sheet.
- Back Rest Section, Manufactured by Screw Handle from Foot End
- Stainless steel tubular Head & Foot bows with terminated Panels.
- Four Locations for I.V Rod
- Material Of The Bed : Iron Size 198L x 90W x 60H Cms
- Colour :-Ivory
- Finishing :- Powder Coated
- Rod :- Round
- Number Of Wheels :- 04
- Sheet Top :- CRCA MS Sheet
- Finish :- Epoxy Powder Coated

#### **17. Quadriceps & Hamstring Curl Machine.**

#### **TECHNICAL SPECIFICATIONS**

- Frame: 50mm x 100mm x 10 G And 2" High Density Foam / Upholstery
- Length : 65 inches/165cms, Width : 39 inches/99cms, Height : 55 inches/140cms

- Fully adjustable from the seated to lying position.
- The unique design allow seated quadriceps and lying hamstrings exercise.
- The jerai leg curl / extension leg curl provides weight stack upto 150 lbs.

## 18. Upper & Lower Ergometers

### TECHNICAL SPECIFICATIONS

This is the recumbent exercise machine that allows one to simultaneously get an upper body and lower body workout. It uses a bike-simulating motion with eight levels of magnetic resistance for the legs and an ergometer with tension dial resistance for the arms to provide cardiovascular fitness and tone muscles. It enables a user to exercise thighs, gluteus, and hamstrings with the lower pedals, and exercise chest, shoulders, arms, and back using the upper crank. The padded seat adjusts for height, and the multi-function electronic LCD tracks speed, distance, and resistance level, while keeping time and counting calories burned. Folds to 24" L x 23 3/4 " W x 48" H for stowing in a closet or garage. With wheels on the bottom for easy room to room transport. Sturdy steel frame supports up to 250 lbs. Assembly required. 45" L x 24" W x 48" H. (53 lbs.)

## 19.EXERCISE BENCHES

Multi adjustable bench

Size-1425 x 780 x 1100 mm

Oval Elliptical Tube- 60 x 120 mm

Surface Finish-Powder Coating

Seat pad adjusts from 0 to 30°, while back pad adjusts from 0 to 85°

Fitted with ABS rubber feet for floor protection

Long life tear resistant PVC+ Polyurethane upholstery

## 20.PARALLEL BARS with Mirror

All Manual-Adjusting Parallel Bars with Hand-rails made of P.V.C. sheathed heavy-gauge iron tubing, bars are mounted on strong metal frame platform with inclination on both ends & covered with non-slip matting.

**Length:** 3.60 meters (about 12feet) with Hand-Rails made of P.V.C.sheathed iron tubing.

**Height:** Adjustable from 76cm to 100cm.

**Width:** Adjustable from 40cm to 65cm.

**Adjustments:** Can easily be done by means of setting Pins at the required holes & can further be stabilised by tightening the screws.

**Construction:** Height & Width adjusting Arms are made of Chrome-Plated steel tubing of 38mm dia. Outer uprights of thick steel tubing (50mm dia) with Powder coating finish. Platform, strong metal frame platform with inclination on both ends with powder coated finish & covered with non-slip matting.

Abduction Board: Detachable Abduction Board in two parts, which fits in the holes in the middle of the platform. **Finish:** Working Parts are Chrome-Plated.

### **MIRROR**

The mirror covered by ply board

Approximate overall Size 210cm x 75cm

The frame is mounted on 4 balls bearing wheel Stand of about 5 cm Dia Finish Glass.

### **21. SHOULDER WHEEL**

100cm diameter, tubular steel constructed Wheel

Wheel is mounted on Three laminated hard-wood wall boards of which Two board are fitted with Two STAINLESS STEEL channels (81cm H x 6cm W) to give wheel 50cm height adjustment to suit each patient.

Arc of motion can be varied from 30cm to 80cm by fixing handle at the required place.

Wheel is fitted with advanced Calibrated Sensitive Resistance mechanism and the resistance is controllable from Zero to Maximum

A 360 degree scale is provided on the drum to measure & record the degree of revolution from either direction (for Left or Right Shoulder) for immediate feed-back to the patient.

Powder coated finish

Manufactured as per ISI standard.

### **22. Static Exercise Cycle**

### **23. Trampoline**

### **24. Examination Couch**

## Group-H: Physiotherapy

<b>Exercise Therapy Equipment's (General Equipment + Multi Gym Unit)</b>	
CPM unit for Upper Limb	<p>The unit should have the following features:</p> <ol style="list-style-type: none"> <li>1. Microcomputer digital controlled with LED display.</li> <li>2. Should be able to prevent joint stiffness in the shoulder for post-operative recovery of ROM.</li> <li>3. Should be useful for bed side patients in supine position.</li> <li>4. Should be used on castor wheels for easy transportation.</li> <li>5. Elevation in flexion range should be 0° - 180°</li> <li>6. Elevation in abduction should be 0° - 180°</li> <li>7. Internal- External rotation range 90° -0° -90°.</li> <li>8. Movements carried out on the elbow should be – Flexion-extension 0°-150°.</li> <li>9. Movement carried out on the forearm should be-Pronation-Supination 90°</li> <li>10. Movement carried out on the wrist – 0-80° Flexion – extension.</li> <li>11. 20°-30° Radial Deviation / Ulnar Deviation.</li> <li>12. Speed, Range of movement adjustment should be possible.</li> <li>13. Arm Support for rotation movement should be available.</li> <li>14. Should comply with Indian and/ or International safety standard certification.</li> <li>15. Unit height should be adjustable as per patient's recruitment.</li> <li>16. The unit should have patient safety device.</li> <li>17. The unit should have control panel on the machine itself.</li> <li>18. Standard accessories &amp; optional accessories should be quoted separately.</li> <li>19. Unit should work on 220V AC, 60/50 Hz power supply and be supplied with UPS of required capacity with battery backup.</li> </ol>
CPM unit for Lower Limb	<p>The unit should have the following features:</p> <ol style="list-style-type: none"> <li>1. Microcomputer digital controlled with LED display.</li> <li>2. Power supply: 85 – 260 V / 50-60 Hz</li> <li>3. Knee movement breadth: 0° – 110°</li> <li>4. Ankle movement breadth: 20° to -40°</li> <li>5. Hip movement breadth (mid limb): 10° – 70°</li> <li>6. Knee and Hip mobilization -Ankle Mobilisation is must in the same unit.</li> <li>7. Speed, Range of movement adjustment should be possible.</li> <li>8. The unit should have patient safety device.</li> <li>9. Should comply with Indian and/ or International safety standard certification.</li> <li>10. Unit should work on 220V AC, 60/50 Hz power supply and be supplied with UPS of required capacity with battery backup.</li> </ol>
Thera Band Station/ Rehab and Wellness Station	<p>Connection capacity</p> <ul style="list-style-type: none"> <li>● 2-42" wall slide connect track.</li> <li>● 1-18" slide connect overhang track.</li> <li>● 1-24" adjustable slide connect cross bar track.</li> <li>● 1- Theraband exercise station floor Base unit.</li> </ul> <p>Accessories</p> <ul style="list-style-type: none"> <li>● 4 theraband exercises handle,</li> <li>● 2 theraband assist straps.</li> </ul>

	<ul style="list-style-type: none"> <li>• 2 theraband extremity straps.</li> <li>• 1 theraband head straps.</li> <li>• 1 waist belt.</li> <li>• All accessories (Theraband) should be attached.</li> </ul> <p>Balance and Core Training</p> <ul style="list-style-type: none"> <li>• 4 theraband stability trainers.</li> </ul> <p>Educational Materials</p> <ul style="list-style-type: none"> <li>• Theraband wall station posters.</li> <li>• Theraband software CD of more than 100 exercises</li> </ul> <p>Should comply with Indian and/ or International safety standard certification.</p>
Multi Gym Unit	<p>Performance Specifications</p> <ul style="list-style-type: none"> <li>• Four-sided modular system with wheels to allow the diversity to move the system wherever needed.</li> <li>• A see-through design to allow easy monitoring of four to five patients at a time.</li> <li>• Combination of high tensile strength steel, continuous welded, factory assembled weight frame.</li> <li>• All frame structures electro statically powder coated to ensure maximum corrosion and chip resistance.</li> <li>• Name of Tube : Square Tubing</li> <li>• Tube Size : 50 mm x 50 mm, Tube Gauge : 2.5 mm</li> <li>• Weight Stack : 150 x 4 = 600 lbs</li> <li>• Weight plate : Rubberized weight plate.</li> <li>• Weight Guide Rods : 25 mm Chrome plated steel, highly polished for smooth movements.</li> <li>• Weight Selector Pin : 10 mm steel pin.</li> <li>• Adjustable seats, back rests and pads are meets all user requirements.</li> <li>• Pull Pins Most adjustment secured with semi-commercial grade spring loaded pull-pins.</li> <li>• Cable : 5.0 mm dia., semi-commercial grade, nylon coated cables.</li> <li>• Pulley : Maintenance free, fiber glass reinforced nylon pulleys fitted with premium grade-A quality roller bearings.</li> <li>• Grips : High density foam rubber hand grips.</li> <li>• Cushioning : 02” inch high density top grade resilient foam.</li> <li>• Finishing : Proprietary two coat powder process.</li> <li>• Rust Proof</li> <li>• Should comply with Indian and/ or International safety standard certification.</li> </ul>
Multi-Activities Work Station	<p>Shall provide storage space for the following 12 most recognized activities:</p> <ol style="list-style-type: none"> <li>1. Pinch Tree.</li> <li>2. Pipe Assembly Unit PVC.</li> <li>3. 25 Hole Peg Board.</li> <li>4. Multi Shaped Peg Board.</li> <li>5. Hand Tool Test Frame</li> <li>6. Finger Dexterity Board.</li> <li>7. Door Latch Board.</li> <li>8. Dressing Boards Set.</li> <li>9. Shoulder Abduction Ladder.</li> <li>10. Bilateral Shoulder Ladder.</li> </ol>

	<p>11. Hand Exercise Board (Velcro)</p> <p>12. Hand Gym Board.</p> <ul style="list-style-type: none"> <li>• Workstation should have two, Wheelchair-accessible side shelves.</li> <li>• Two, Drop-out doors converting into workspace.</li> <li>• Lockable double doors for security.</li> <li>• Sturdy construction with durable laminated work surfaces</li> <li>• Should comply with Indian and/ or International safety standard certification.</li> </ul>
Partial Weightbearing System / Un-Weigh Mobility Trainer(with Treadmill)	<p>Specifications:</p> <p>Un Weigh Mobility Trainer</p> <ul style="list-style-type: none"> <li>• Un-weighing: Can be set 0% to 100% of the body weight, digitally.</li> <li>• Un-weighing System: Up to 24", ideal for sit to stand exercises also.</li> <li>• Vertical Oscillation: Foam padded, with adjustable Back-rest, Size 120cm x 210cm.</li> <li>• Control Panel: Digitally display Patientweight, Percentage of Un-weighing, Mode, Treatment Time.</li> <li>• Un-weighing range.: 0-120 kg.</li> <li>• Un-Weighing Harness: Two, Small and Standard size.</li> <li>• Handrails: For patient's support, Adjustable &amp; Removable.</li> <li>• Frame measures: 42"L x 33" wide inside &amp; fitted with Four, 6" lockable wheels.</li> <li>• Power Supply: Unit Operates on 220V AC, with battery back-up system.</li> </ul> <p>Treadmill</p> <ul style="list-style-type: none"> <li>• Professional Walking Treadmill, with following specification: <ul style="list-style-type: none"> <li>▪ Motor : Industrial grade, 2HP, AC motor with continuous duty.</li> <li>▪ Speed : 1 - 12kph.</li> <li>▪ Readout : Time, Speed, Distance, Incline, Heart Rate, &amp; Program.</li> <li>▪ Belt : 18" x 52" running surface with heavy duty running belt.</li> <li>▪ Maintenance. : Lubricated bed/belt combination.</li> <li>▪ Power Supply: 220V. AC.</li> <li>▪ Automatic voltage stabilizer of required capacity.</li> </ul> </li> </ul> <p>Should comply with Indian and/ or International safety standard certification.</p>
Bolsters	<p>Foam padded</p> <p>Covered with bright coloured Nylon/ Teton Clothes</p> <p>Having solid plastic core suitable for rolling/ rocking exercises.</p> <p>Sizes- 15×60 cm, 20×90 cm, 25×90 cm, 30×90 cm &amp; 40×120 cm</p>
Swiss Ball	<p>Constructed with soft elastic material. Bright single coloured.</p> <p>Set of Five: Diameter 55cm, 65 cm, 75 cm, 85 cm &amp; 95cm when inflated with air.</p> <p>Set should be provided with a hand pump for inflation of balls.</p>
<b>Electrotherapy Equipments</b>	
Shock Wave Therapy Unit	<p>The unit should have the following features:</p> <ol style="list-style-type: none"> <li>1. Extra Corporeal Shockwave Therapy Machine With Pneumatic Technology (radial Shockwave)</li> </ol>

	<ol style="list-style-type: none"> <li>2. The unit should have Pneumatic Pressure adjustable from 1 Bar to 5 Bar.</li> <li>3. The unit Should have Multiple Pulse Operating Mode.</li> <li>4. Should have repetition rate for (Frequency) of 1Hz -20Hz</li> <li>5. Should have colour touch screen (7 to 10 inch) interface with preloaded indication list.</li> <li>6. Should have options to store user programmes.</li> <li>7. Should have ergonomic applicator for comfortable use.</li> <li>8. Should be offered with continuous, pulsed and burst mode of current.</li> <li>9. System must be offered with pre-set facility.</li> <li>10. Should be mounted on customised Wheel Cart for easy transportation of the equipment along with the compartment for compressor or trolley model with holders for Guns.</li> <li>11. Should be provided with at least 2 applicators (guns) of diamensions suitable for treating small and large treatment areas.</li> <li>12. Accessories should include Applicator gel of 1000ml.</li> <li>13. Cost of revision kit must be quoted separately in the commercial bid.</li> <li>14. Revision kit should deliver at least 20 Lakh shocks.</li> <li>15. The unit should work on 220 Volt AC &amp; 50 Hz.</li> <li>16. Should be provided with ON-LINE UPS of required capacity with battery backup.</li> <li>17. Should work in environmental temperature of 20°C to 40° C &amp; should bear the relative humidity level up to 85%.</li> <li>18. The Shockwave applicator hand unit should have a soft covering to absorb the shock impact.</li> <li>19. Should comply with Indian and/ or International safety standard certification.</li> </ol>
LASER Therapy Unit	<p>Technical Specifications</p> <ol style="list-style-type: none"> <li>1. Low Level Laser Therapy</li> <li>2. Red/ Infrared LASER output.</li> <li>3. Continuous/ Pulsed mode of operation.</li> <li>4. Probe/ Scanning/ Sweep mode of treatment.</li> <li>5. Indication Based</li> <li>6. LCD Interface with graphic display.</li> <li>7. Pulse frequency 0- 5000 Hz.</li> <li>8. Should be provided with 2 Protective Goggles and other standard accessories.</li> <li>9. Should comply with Indian and/ or International safety standard certification.</li> <li>10. Should be provided with UPS of required capacity.</li> </ol>
EMG Biofeedback System	<p>The unit must have following features:</p> <ul style="list-style-type: none"> <li>• Dual channel EMG (Biofeedback) with biofeedback acquisition up to 10000µV</li> <li>• EMG Biofeedback with Stimulation available in 2 &amp; 4 channels</li> <li>• Should have Passive and Active phases: EMG and NMS in one programme</li> <li>• Should have Manual and Automatic threshold control.</li> <li>• Should offer EMG Biofeedback between stimulation (muscle activity and tiredness indication when using muscle stimulation).</li> <li>• Built in protocols as well as user defined locations.</li> </ul>



	<ul style="list-style-type: none"> <li>• Surface EMG, SP activity, interference, Triggered EMG, Turns/Amplitude Analysis can be done on a single screen.</li> </ul> <p>Should comply with Indian and/ or International safety standard certification.</p> <p>PC software should offer-</p> <ul style="list-style-type: none"> <li>• 3 different Biofeedback software</li> <li>• Audio-feedback and alarms</li> <li>• Auto-thresholds</li> <li>• Should have pre-programmed protocols for: Incontinence, Sports, re-education of muscles, Rehab and space for customized programs</li> <li>• Templates to guide patients on their performance goal and to Record, replay and review sessions</li> <li>• Patient progress reports on a day to day basis.</li> <li>• Large amount of data storage.</li> <li>• Built in protocols as well as user defined locations.</li> </ul> <p>EMG TECHNICAL DETAILS:</p> <ul style="list-style-type: none"> <li>• EMG Range: 0.2 to 2000 <math>\mu</math>V RMS (continuous)</li> <li>• Sensitivity: 0.1 <math>\mu</math>V RMS</li> <li>• Selectable Band pass filter – Wide and Narrow</li> <li>• Common Mode Rejection Ratio (CMRR): 130 dbs Minimum @ 50 Hz</li> <li>• Power Supply: 1.5V, AA battery</li> <li>• Work / Rest periods: 2-99 seconds</li> <li>• Number of Trials: 1-99</li> </ul> <p>TECHNICAL DETAILS</p> <ul style="list-style-type: none"> <li>• Amplitude: 0-90 mA into 500 Ohm load</li> <li>• Waveform: Symmetrical, rectangular, bi-phasic</li> <li>• Pulse width selection: 50-450 <math>\mu</math>S</li> <li>• Pulse rate selection: 2-100 Hz</li> <li>• Ramp up time: 0.1 - 9.9 seconds</li> <li>• Automatic output shut off with detection of open electrode above 0.5 mA</li> <li>• Should display Low battery indication and automatic shut off when voltage drops below the low indication.</li> <li>• Should comply with Indian and/ or International safety standard certification.</li> <li>• Should be provided with UPS of required capacity.</li> </ul> <p>Hardware Requirement for Branded Desktop:</p> <ul style="list-style-type: none"> <li>• i5- 8250 U / 8 GB / 256 SSD / Window 10 Pre- installed.</li> <li>• HDD- 1 TB or more</li> <li>• LED monitor- 17”</li> </ul> <p>Laser Printer with facility of Scan, Copy and Print.</p> <p>Accessories: Standard carbon electrode and Adhesive electrode, Vaginal and Rectal Probe. With integrated trolley with castor wheel lock system with multiple drawers</p>
Moist Heat Therapy/ Hydrocollator	<ul style="list-style-type: none"> <li>• The unit should be able to run at least 8 hours/day with a temperature range from at least 50 deg to 60 deg centigrade or more.</li> <li>• Unit should be with fibreglass insulation to prevent heat loss.</li> <li>• Unit should be made up of high grade stainless steel.</li> </ul>

	<ul style="list-style-type: none"> <li>• Unit should have simple arrangement to fill in water, No plumbing required.</li> <li>• Temp of pack should be maintained.</li> <li>• Unit should supply with castor facility.</li> <li>• Tank capacity should be 45 -49 ltr.</li> <li>• Temp range should be from 72 to 74 deg C</li> <li>• Should have additional Thermal cut out at temp 82 to 85° C.</li> <li>• Should provide min 8 packs.</li> </ul> <p>Should comply with Indian and/ or International safety standard certification.</p>
<p>Portable      Combination Therapy      Therapy</p>	<ul style="list-style-type: none"> <li>• A single unit consists of Electrotherapy Current and 1&amp;3 MHz Ultrasound.</li> <li>• Should have inbuilt Clinical Library for Electro Therapy and Ultrasound Modalities.</li> <li>• Should have facility to run three treatment simultaneously with individual parameters.</li> <li>• In combination mode, it should deliver selected current from the ultrasound applicator along with ultrasound waves.</li> <li>• Equipment should have Graphic LCD screen with minimum of 5.7 inch diagonal length.</li> <li>• Equipment should have S-D curve facility where all reading should appear in tabulation</li> <li>• Unit should have following minimum current with given specifications of the parameters :</li> <li>• 4 Pole with Vector</li> <li>• 2-Pole</li> <li>• I-Galvanic with frequency upto 100 Hz and width from 0.01 to 300 mSec.</li> <li>• Russian with Ramp ON / OFF.</li> <li>• TENS with selection of Symmetrical and Asymmetrical biphasic output.</li> <li>• Iontophoresis</li> <li>• NMES with Single, Reciprocal and Co-Contraction modes.</li> <li>• Ultrasound Therapy should deliver 1 Mhz or 3 Mhz from the single applicator.</li> <li>• Ultrasound should have facility to adjust following parameters:</li> <li>• Timer:1 - 90 min</li> <li>• Duty Cycles : Pulsed.10%, 20%, 50%</li> <li>• Continuous: 100%</li> <li>• Rate:16, 48, and 100 Hz</li> <li>• Frequency:1MHz, 3MHz</li> <li>• Intensity: 0 to 2.5 W/cm<sup>2</sup></li> <li>• System should supply with two set of output cable, 4 rubber electrodes, 1 packet of pre jelled sticking electrode, point electrode.</li> <li>• Should be provided with UPS of required capacity</li> </ul> <p>Should comply with Indian and/ or International safety standard certification.</p>

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