Department of Biochemistry

<table>
<tr><th>S.No</th><th>Name of Equipment</th><th>Specification</th><th>Qty</th><th>Suggested Manufacturers Name</th><th>Approx. Unit Cost (Rs.)</th><th>Usage</th></tr>
<tr>
<td>1</td>
<td>Microprocessor UV-VIC Spectrophotometer</td>
<td>
<table>
<tr><td>Spectral</td><td></td></tr>
<tr><td>Wavelenghth range</td><td>190 to 1000 nm</td></tr>
<tr><td>Spectral bandwidth</td><td>2 nm</td></tr>
<tr><td>Accuracy</td><td>+ 0.5 nm</td></tr>
<tr><td>Readability</td><td>+ 0.3 nm</td></tr>
<tr><td>Read-out (wavelength)</td><td>4 digit 7 segment led</td></tr>
<tr><td>Resolution</td><td></td></tr>
<tr><td>Photometric</td><td></td></tr>
<tr><td>Photometric range</td><td>% t : 0 to 100% abs : 0 to 1.999 conc. : 0 to 1.999 k factor : 0 to 1.999</td></tr>
<tr><td>Accuracy</td><td>+ 0.005 abs at 1.0 abs
+ 0.010 abs at 1.5 abs</td></tr>
<tr><td>Stray light</td><td>Less than 0.1% at 320 nm</td></tr>
<tr><td>Readability</td><td>+ 1 count</td></tr>
<tr><td>Data readout</td><td>16 x 2 line lcd back lit display</td></tr>
<tr><td>Key board</td><td>8 keys, soft touch membrane type</td></tr>
<tr><td>Data storage</td><td>Upto 100 samples (0-99)</td></tr>
<tr><td>Printer interface</td><td>Printer interface for any centronics dot matrix printer</td></tr>
<tr><td>Serial interface</td><td>Rs 232c interface (optional)</td></tr>
<tr><td>Light source</td><td>(a) tungsten – halogen lamp (b) deuterium lamp (d2)</td></tr>
<tr><td>Detector</td><td>Wide range silicon photodiode</td></tr>
<tr><td>Optics</td><td>Complete mirror optics with resolution 1200 grooves / mm grating, czerny turner mount</td></tr>
<tr><td>Sample holder</td><td>4 position adjustable sample holder</td></tr>
<tr><td>Power</td><td>230 v + 10% 50 hz ac</td></tr>
<tr><td>Dimensions</td><td>550 x 405 x 130 mm (lxbxh) approx.</td></tr>
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</td>
<td>01</td>
<td>*Thermo fisher Scientific

*Lab Tronics India

*Systronic

*Shimaadzu</td>
<td>300000-500000/-

400000-800000/-</td>
<td>For research purpose

To estimate metabolites for genetic metabolic diseases.</td>
</tr>
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		<table><tr><td>Weight</td><td>25 kg. (approx).</td></tr><tr><td>Accessories</td><td>*quartz cuvetts set of 2 *dust cover *plastic cuvetts set of 4, operation manual</td></tr></table> **A. C. 2 TONS**				
2	**Electrophoresis Apparatus**	. The system should be fully automated based on capillary technology and capable of separation and analysis of proteins derived from serum, urine & haemoglobin with high resolutions . Continuous loading, multi assay and STAT functions for high throughput analysis . Should be able to perform simultaneously up to 8 on board methods. Able to Process serum & urine samples simultaneously . The instrument should have user definable positions for up to 6 buffers, reagents And user defined antisera combinations . The throughput of the system should be 70 samples/hour for serum protein Analysis . The capillary chamber must be peltier controlled with eight fused silica capillaries With size of 50 . Ability for primary tube sampling and automated buffer switching . Should be able to perform Isoelectrofocusing for haemoglobin and Immunodisplacement of serum and urine samples . Possibility of automated sample recall and reflex testing of samples . Loading of up to 112 samples for analysis . Ability to test for free Kappa/free lambda/lgD&lgE chains . Managed by windows based software with features for –	**01**	***Thermo fisher scientific** ***B.D.Ltd.** ***Bio-RAD**	**800000-1200000/-**	**To diagnose Hemoglobinopathiq like-sickle cell disease, thallasemia.** **To diagnose cancers by protein electrophoresis.** **To diagnose abnormal protein for rare disease & genetic diseases.**

		advanced editing, Database flagging, QC and validation with Levy-Jenings chart . Bi-directional communication facility with import and export of patient data and Results **A.C. 2 TONS**				
3	**Specification for ELISA Microwell Plate Reader**	. The system should work with a keypad on 20 keys. . The system should be 8-channel optical measuring system. . It should be able to read U-, V-, or flat bottom 96-well plate. . The photometer should be filter wheel based. . The system should have capability for Mono, Bi chromatic measurements. . The entire Microwell plate should be measured within 8 seconds in the Monochromatic measurement mode. . The Results ie. Abs, Sample No. and interpretation must be seen on the screen in Matrix form. Graphs should be displayed on the screen and printout possible. . System should be provided with 405nm, 450nm, 492nm, and 630nm standard Filters. There should optional 578 nm, 690nm extra filter positions. . System should have facility up to 100 user defined test protocols. . System should have large LCD display, with user friendly, for software operation. . System should have variable speed linear shaking facility for the Microwell plates for removal of micro bubbles and mixing of the well solution. The time and speed should be user definable. . The Microwell plate position should have aerosol cover facility	**01**	***Thermo Fisher S.** ***Labtronics** ***Biorad**	**500000-800000/-**	**For diagnosis of cancers by estimating tumor markers.** **To monitor effectiveness of cancer treatments.** **To find out inflammatory marker load in various diseases & cancer. Eg. TNF-alfa, IL-8, Procalcitoni, IgG/A/M.** **Antigen testing for diseases & viral infections.** **Diagnose autoimmune diseases like SLE**

		to prevent external contaminants and stray light. . It should have the measurement range up to 2.5 Abs. . The On-board software should have capability of storing the calibration curve Data for at least 8 standards in all the test programs. . The Curve should be displayed on screen. . The system should have 1cutoffequations per qualitative test and Gray zone. . It should have facility for plate mapping. Plate mapping must allow positioning of Control, calibrator, blanks and samples at any location on the plate with lab Custom Patient IDs. . the system must accept external inkjet printer and must print results in preformatted matrix form giving details such as Sample No. Value, Abs and interpretation, with cut off equation for qualitative results. . The on board software should have QC data store facility for up to 31 points, With the Levy – Jennings curve. . It should have ports for external printer and for transmission of data to the host computer. . It should have optional host computer software for extensive data management Capability. PC Link software Elilims is optional **A.C. 2 TONS**				

4	**Specification for ELISA Washer.**	. The System must have 8 channel manifold and 12 channel manifold supplied with The instrument. . It should have a Tough Screen and no keypad. . It should have 4 bottles connected to it online, one Rinse, 2 Wash and One Waste bottle. . The Waste bottle must have sensors . The system should have 64 wash protocols. . The system should have 10 presents for different micoplates. . It should have two options for dispensing Low, and High. . The system must offer choice to use any of the 2 wash buffers while running. . The system must perform Top wash, bottom wash and in case of Flat well, crosswise washing. It should have soak facility for 255 s. . The Micro plate must be docked in a removable Plate Carrier, whose Decontamination can be performed. . The system must have Aerosol Cover to prevent particulate matter during wash Cycle. . Standard accessories must contain pin for cleaning manifolds, 1 fuse, 1 power Cord	**01**	***Transasia Ltd** ***Thermo Fisher Scientific** ***BIO-RAD** **(Supplied as a automated system with ELISA reader)**	200000-250000/-	**For diagnosis & monitoring effectiveness of treatment for cancer (Tumor marker) and other inflammatory diseases.** **Used as a part of ELISA reader to speed up washing process.**
5	**Specification of Hormone assay analyzer (Chemiluminescence**	. Chemiluminescence detection system . Paramagnetic micro particle solid phase . Sample and reagent continuous loading	**01**	***Rosche Ltd** ***Siemens** ***Biomeriux**	**1500000-2500000/-**	**For diagnosis of routine hormonal disorders.** **Thyroid disorders, growth disorder, gynecological**

	assay)	**.** Random access or batch mode **.** 2-point calibration **.** STAT **.** Autodilution **.** Maximum throughput:~180 results/h **.** Continuous access to reagents, samples and supplies **.** Sample load capacity **.** Refrigerated reagent positions **.** Reagents stable on board for up to 30 days (tracked in hours) **.** Fewer workload pauses **.** Simple and easy to use system with intuitive user friendly software **.** Low maintenance (10 minutes/day) **.** Immediate and consistent STAT processing with turnaround time of 15.6 minutes On STAT assays **.** Automatically runs priority tests first with up to 7 customizable priority bays Or >15 STAT positions **A.C. 2 TONS**				**disorders like - Infertility PCOD.** **These tests are costly and not affordable by poor people.**

6	**Specification of PCR Apparatus**	. The system should be a 96 well Thermal Cycler . Thermal Cycler with 6 separate peltier block to provide independent temperature Zones to run – six different assays with varying annealing temperatures at the Same time. . Each block to accommodate 16 wells and having the ability to set up PCR with a Specific temperature differential of up to 5 degree centigrade between blocks. . Run up to 6 separate temperatures in the same plate with user defined time to Determine the optimal annealing temperatures. . On board Tm calculator facility to approximate the optimal annealing temperature. . The system should provide for Standard and Fast run modes in a single instrument with the ability to use 0.2ml / 0.1ml PCR tubes or micro- well plates. . The system should support PCR volumes ranging from 10 to 80 micro litre. . Mouse or stylus free navigation capability with VGA colour touch screen allowing For easy intuitive graphical user interface programming. . Choice of saving the methods up to 800 to the instrument or unlimited to a USB Memory stick. Programmable heated lid cover from for efficient PCR optimization. . Scalability: capability to interlink up to 11 PCR systems via single Ethernet hub. . Security: The system should have the ability to store most	**1**	***Thermo fisher scientific** ***B.D.Ltd.** ***Biomeriux**	**2500000-3000000/-**	**To Identify genetic defect & gene analysis for genetic diseases.** **Diagnosis of Tuberculosis by T.B. (RNA)** **To prepare genemap & gene database for diseases.**

		important methods on a Memory stick. **.** Portability: The system should have a USB port to transfer methods from one machine to another. The system should allow easy product updates via USB port. The machine should be duly certified / authorized for PCR process and the vendor should produce the certificate for the same. **A.C. 2 TONS**				
7	**HPLC unit with inbuilt operating modules**	I. Binary Pump for Semiprep work Operating pressure: upto 6000 psi Flow accuracy: +/- 1.0% Flow precision: ± 0.1% RSD Programmable flow rate range: 001 - 20.0 ml/min in 0.001 ml/min increments. No. of eluents: 2 Pressure Ripple: <2.0% Operating pressure limits: Programmable with high and low pressure limits, user selectable in psi, bar, kPa. Precise stepper motor control (48 steps/ul resolution) of dual reciprocating pistons to ensure pulse free solvent delivery. Auto stat programming: Capability for Auto stat & Equilibrium Multi method programming: Multimethod programme Plunger guiding system: Floating, self aligning mount Storage of upto 1 complete method parameters tables with external events Composition range: 0-100% Composition accuracy: ± 0.5% (independent of Back Pressure) Flow extendable to 45.00 ml/min along with extended flow kit Primary wetted surface materials: 316 stainless steel, sapphire, reinforced fluorocarbon polymer seals. Compact with gradient mixer and pump control module.	**1**	***BD (Becton Dickinson)** ***GE Healthcare** ***Shimadzu** ***Water's**	**2000000-2800000/-** **2000000-2500000/-**	**For research analysis purpose.** **Diagnose Aminoaciduria (Pediatric genetic disorder) & Inborn errors of metabolism like Phenyl ketonuria.** **Testing of specific metabolites for diagnosis of diseases.** **This facility is available only at higher centers like Delhi/ Mumbai/ etc**

		Option for use under extended flow rate Pump control module II. Pump Operating Method: Gradient III. Sample Injection System Auto-sampler Injection: The sample is introduced via an autosampler IV. Detectors: Photodiode Array Detector (PDA detector) Wavelength range: 190 - 800nm. Light source: Prealigned, Deuterium lamp with one year warranty. Spectral Resolution: 1.2nm per photodiode with a total of 512 photodiodes, digital and optical (3D modes). Data Rate: Upto 80Hz Digital Resolution: 1.2nm - 600nm (2D mode). Wavelength accuracy: +/_ 1nm. Linearity range: >5% at 2 AU Prolylparaben, 257nm. Baseline noise: 10.0 x 10-6 AU, at 254nm. Drift: < 1.0 x 10-3 AU/hour/°C, dry cell at 254nm. Sensitivity setting range: 0.0001 - 2.0000 AUFS (under software control). Filter setting range: 0, 0.1, 0.2, 0.5, 1, 2, 3 Path length: upto 10mm Cell Volume: upto 8ul Pressure: upto 1000psi Wetted materials: 316 stainless steel, fused silica, Tefzel Auto threshold for peak purity along with peak purity software. The detector should have lamp optimization software. Note: Should have the option to add on/use other detectors as and when needed. V. Column oven model: Temperature Range Ambient +4°C to 60°C VI. Columns C-18 : 250 x 4.6 mm				

		C-8: 250 x 4.6 mm Pre-column derivatisation kit for Amino Acids Bio suite C-18 PA-A 3 µm: 4.6 x 250 mm Protein pak: 7.8 mm x 300 mm VII. Software and Computer System with add-on facility Single point control of the entire HPLC Mass detection software Maintain security and regulatory compliance Versatility for multitasking without multiple software package and should have different interface like QuickStart Pro, Open Access, etc. With Windows XP environments with compatible database. Data Integrity, Advanced Security, Audit Trails. Customizable data reports, online help wizards Report publisher Should have the facility for up-gradation of software and programme modules VIII. Latest model Pentium IV computer with 2.8GHz, 3 GB RAM, 360 GB hard disk and compatible with Windows XP Professional and higher versions from standard company IX. Coloured laser printer X. Online UPS 3 KVA with 30 minutes back up. XI. Water purification System (from tap water to ultra pure water for HPLC)				
08	**LCD Projector with screen**	As per standard specification.	**03**	***Siemens** ***Philips** ***Wipro**	**30000-70000/-**	**For teaching of PG Students Seminar/ Presentations.**