

The committee constituted by the DFSS has scrutinized the available specification of different items. The draft specifications of the equipment are given below to invite the comments of the stakeholders.:

Sr. No.	Name of Equipments	Technical Specifications																														
1)	Digital autoclave	<p>➤</p> <ul style="list-style-type: none"> <li>• Fully automatic vertical floor model with castors</li> <li>• Capacity 50 to 75 litres</li> <li>• Microprocessors based control for high level accuracy and user level flexibility</li> <li>• Sterilizing temperature range 115°C to 135°C</li> <li>• Provision for effortless loading and unloading</li> <li>• Internal chamber and lid fabricated from stainless steel</li> <li>• Flexible sensor for in-situ control and monitoring of cycles</li> <li>• Conformance to national and international standards for alarm and safety</li> <li>• Warranty 2 years or more from the date of installation</li> </ul>																														
2)	High Quality Water Purification System	<ul style="list-style-type: none"> <li>• Molecular Grade water for Forensic DNA analysis.</li> <li>• Two stage system capable of producing pure( Type II) and ultra pure (Type I) water.</li> <li>• Quantitative specifications of Type II and Type I water:</li> </ul> <table border="1" data-bbox="573 1115 1401 1787"> <thead> <tr> <th data-bbox="573 1115 743 1150">Parameters</th> <th data-bbox="743 1115 1057 1150">Type II(Pure)</th> <th data-bbox="1057 1115 1401 1150">Type I(Ultra pure)</th> </tr> </thead> <tbody> <tr> <td data-bbox="573 1150 743 1220"><b>Resistivity</b></td> <td data-bbox="743 1150 1057 1220">10-15 Mega Ohms.cms @ 25 degree Celsius</td> <td data-bbox="1057 1150 1401 1220">18 Mega Ohms.cms or better @ 25 degree Celsius</td> </tr> <tr> <td data-bbox="573 1220 743 1289"><b>TOC (ppb)</b></td> <td data-bbox="743 1220 1057 1289">&lt; 30</td> <td data-bbox="1057 1220 1401 1289">&lt;2</td> </tr> <tr> <td data-bbox="573 1289 743 1358"><b>Particles</b></td> <td data-bbox="743 1289 1057 1358">no particles with size &gt; 0.2µm</td> <td data-bbox="1057 1289 1401 1358">no particles with size &gt; 0.2µm</td> </tr> <tr> <td data-bbox="573 1358 743 1428"><b>Bacteria</b></td> <td data-bbox="743 1358 1057 1428">&lt; 0.01 CFU per ml</td> <td data-bbox="1057 1358 1401 1428">&lt; 0.01 CFU per ml</td> </tr> <tr> <td data-bbox="573 1428 743 1497"><b>Endotoxins</b></td> <td data-bbox="743 1428 1057 1497">&lt; 0.001 EU per ml</td> <td data-bbox="1057 1428 1401 1497">&lt; 0.001 EU per ml</td> </tr> <tr> <td data-bbox="573 1497 743 1566"><b>RNase</b></td> <td data-bbox="743 1497 1057 1566">&lt;1 picogram per ml</td> <td data-bbox="1057 1497 1401 1566">&lt;1 picogram per ml</td> </tr> <tr> <td data-bbox="573 1566 743 1635"><b>DNase</b></td> <td data-bbox="743 1566 1057 1635">&lt;5 picogram per ml</td> <td data-bbox="1057 1566 1401 1635">&lt;5 picogram per ml</td> </tr> <tr> <td data-bbox="573 1635 743 1705"><b>Protease</b></td> <td data-bbox="743 1635 1057 1705">&lt; 0.15 micro gram per ml</td> <td data-bbox="1057 1635 1401 1705">&lt; 0.15 micro gram per ml</td> </tr> <tr> <td data-bbox="573 1705 743 1787"><b>Flow rate(L/hr)</b></td> <td data-bbox="743 1705 1057 1787">10 litres per hr or better</td> <td data-bbox="1057 1705 1401 1787">10 litres per hr or better</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Water purification system with display of Resistivity, level of</li> </ul>	Parameters	Type II(Pure)	Type I(Ultra pure)	<b>Resistivity</b>	10-15 Mega Ohms.cms @ 25 degree Celsius	18 Mega Ohms.cms or better @ 25 degree Celsius	<b>TOC (ppb)</b>	< 30	<2	<b>Particles</b>	no particles with size > 0.2µm	no particles with size > 0.2µm	<b>Bacteria</b>	< 0.01 CFU per ml	< 0.01 CFU per ml	<b>Endotoxins</b>	< 0.001 EU per ml	< 0.001 EU per ml	<b>RNase</b>	<1 picogram per ml	<1 picogram per ml	<b>DNase</b>	<5 picogram per ml	<5 picogram per ml	<b>Protease</b>	< 0.15 micro gram per ml	< 0.15 micro gram per ml	<b>Flow rate(L/hr)</b>	10 litres per hr or better	10 litres per hr or better
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		<p>water in reservoir, etc.</p> <ul style="list-style-type: none"> <li>• Water purification system should be ISO certified for standard safety norms.</li> <li>• Built-in Quick Reference Guide for immediate understanding of the main operations.</li> <li>• Necessary Consumables for 2 years of operation</li> <li>• Warranty: 3 Years</li> </ul>
3)	Digital Microscope	<ul style="list-style-type: none"> <li>• Trinocular Research Microscope with CCD (HD) camera resolution 3072 x 2304 or better and image analysis attachment for biological specimens like spermatozoa, epithelial cells, hair and fibres, plant and insects materials.</li> <li>• Software: Image analysis software</li> <li>• Hardware : Latest (i5) branded computer with 20 inch or more monitor</li> <li>• LED illumination</li> <li>• Pairs of Eye piece of 10 x and 20 x</li> <li>• Objectives lens of the microscope 4x , 10x, and 100x ( Oil Free)</li> <li>• Magnification: 40x-2000x or better</li> <li>• Along with ocular micro meter and stage micro meter</li> <li>• Warranty 2 years or more from the date of installation</li> </ul>
4)	Tissue Lyser	<ul style="list-style-type: none"> <li>• Power supply- 220-240 V</li> <li>• Tissue lyzer for processing of biological samples such as bones, tooth, plant material.</li> <li>• It should have Convenient and secure disruption process and adapter set optimized for high-throughput disruption of biological sample enabling processing of DNA isolation.</li> <li>• Wide range of accessories for processing of hard tissues.</li> <li>• Warranty: 3 years</li> </ul>
5)	UV HEPA Workstation	<ul style="list-style-type: none"> <li>• UV HEPA workstation suitable for microbiology/molecular biology lab.</li> <li>• UV HEPA workstation with HEPA filter, UV irradiation and antimicrobial stainless steel body.</li> <li>• Effective decontamination of the system with three stage filters – Prefilter, carbon filter, and HEPA filter or better.</li> <li>• Working chamber with suitable UV source and UV air circulator and white light.</li> <li>• Fitted with UV Timer, UV light switch to regulate UV light automatically.</li> <li>• Acrylic Enclosure/Chamber should be UV blocked, chemical resistant.</li> <li>• Provision of at least two shelves for placement of tip boxes, tubes and other consumables.</li> <li>• The built in electrical power points for operation of any</li> </ul>

		<p>equipment within the working chamber.</p> <ul style="list-style-type: none"> <li>• Warranty : 3 years</li> </ul>
6)	Gel Documentation System	<ul style="list-style-type: none"> <li>• Power supply- 220-240 V</li> <li>• CCD imager for imaging of chemiluminescent Western Blots, Fluorescent proteins and DNA gel stains and white light imaging of colorimetric stains and markers.</li> <li>• System should enable detection of picogram levels of sample with chemiluminescence.</li> <li>• System should have inbuilt touch screen based control and image output with ready to use gel image print. It should have onboard capture and analysis software for ease of use and automation, with PC connectivity and USB connection.</li> <li>• CCD based camera with fixed focused lens of 30mm or better.</li> <li>• Cooling of CCD for noise free images.</li> <li>• System should have at least 8.0 Mega pixel (MP) CCD chip for high resolution and quantitative imaging of gels and blots</li> <li>• Should have bright lens with and should not require focusing and calibrations for quantitative blot- and gel- imaging</li> <li>• Compact network dark room should include UV, White and blue epi-illuminator sources.</li> <li>• Suitable be supplied with filters for SYBR Green, SYBR Green II, SYBR Gold, Deep purple, EtBr</li> <li>• Sample placement slot should be fixed and application specific trays for samples should be provided</li> <li>• Image capturing modes should be automatic, semi auto, manual (Exposure times given manually).</li> <li>• System should have automatic focusing, light source and emission filter selection based on the application selected, no need for manual intervention</li> <li>• Analysis software should be provided for: 1D electrophoresis gel and blot analysis, Array analysis, Colony counting &amp; basic 2D spot measurement, Should be capable of detection and quantitation of protein and DNA gels.</li> <li>• Warranty: 3 years</li> </ul>
7)	UV Vis spectrophotometer	<ul style="list-style-type: none"> <li>• Power supply- 220-240 V</li> <li>• Monochromator based Optical system</li> <li>• Wavelength Range from 200nm to 1000nm</li> <li>• Compatible with 96 and 384 well microplate</li> <li>• Reads plate for micro-volume DNA/RNA and protein analysis</li> <li>• Light source- Xenon Flash Lamp</li> <li>• Touch Screen Display for easy to use interface</li> <li>• Transfer the measured data to a PC by connecting the device directly to PC without any additional software</li> <li>• Warranty: 3 years</li> </ul>

8)	Liquid Handling System	<ul style="list-style-type: none"> <li>• Power supply- 220-240 V</li> <li>• Single/multiple channel robotic arm with features like Aspiration, Dispensing and Mixing of Liquids with external ejection of the tips.</li> <li>• System should be compatible to use Plates (24, 48, 96 and 384) and tubes of various brands.</li> <li>• Facility for customized protocols.</li> <li>• The deck positions in the system should be inter exchangeable for Plates and Tubes.</li> <li>• System should have UV &amp; HEPA Filters inside to avoid Aerosol contamination during the run.</li> <li>• Liquid Level Sensing: - Minimum detection volume (10 µl in 200 µl PCR tubes).</li> <li>• Tip Volume: - Conductive Tips with the range of 0.5–200 µl, System should have option for re-usage of the tip.</li> <li>• In-built bar code reading facility</li> <li>• Upgradable Software with user license.</li> <li>• System should have special pipetting features like HEPA Control during the run, Sample Pooling, Sample Duplication and Serial dilution.</li> <li>• Applications: - DNA extraction/Differential extraction, Set up of PCR, RT-PCR, Serial dilution, distribution in tubes or plate, Normalization etc.</li> <li>• Software of the system should provide Import and Export option for creating sample ID and Experiment Set up.</li> <li>• System should be upgradable</li> <li>• Warranty: 3 years</li> </ul>
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