1. **Real time PCR machine with a computer and UPS**

**Specifications**

1. Fast Real Time PCR with run time of less than 45 minutes. The machine should provide five color multiplexing. The system must be open for all chemistries including SYBR Green, Taqman, Molecular Beacons and Scorpion Probes.

2. The system must provide advanced single source detection, the system must be able to detect wavelength from 350 -750nm range

3. The system must be able of custom filter alignment(e.g. mismatch excitation and emission filters: FAM excitation / ROX emission)

4. The system must offer user customizable filter wheel design, to accommodate custom excitation and emission filter pairs. The standard filter set should include FAM/SYBR Green I/ Eva Green, HEX/JOE/VIC, ROX/Texas Red, Cy3 and Cy5.

5. The system must offer 10 logs of linear magnitude range. The software must allow analysis of multiple gene expression plates simultaneously.

6. The detection source should offer large dynamic range of detection and a low signal to noise ratio, allowing low to high abundance targets to be accurately quantified. The system must have an inbuilt computer to save the data in event of external computer crash

7. The system must offer 96-well format with 0.2 ml. Should be supported by 96 well plates and strips from the same manufacturer. The system must be open to accept consumables from other vendors also.

8. The system must offer minimum sample volume of 10 μL. Use of Internal passive reference should be optional. A 2 KVA suitable UPS with one hour of battery backup should be provided free along with the system.

9. The Instrument must be a true five color multiplexing Instrument. Lower models, if quoted shall be summarily rejected.

**Computer specification** : Intel core i7 Configuration

a. CPU : Intel Core i7-2600, 3.4 GHz, 8 MB Cache or better.

b. Chipset : Intel Q67 Express or higher on OEM Motherboard.

c. Bus Architecture : 4 PCI (PCI/ PCI Express)

d. Memory : 2 GB 1066 MHz DDR3 RAM with 8 GB Expandability.
e. Hard Disk Drive : 320 GB 7200 rpm Serial ATA HDD or higher.

f. Monitor : 47 cm (18.5 inch) larger LED/ TFT Digital Colour Monitor TCO- 05 certified.

g. Keyboard : 104 keys .

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h. Mouse : Optical with USB interface.

i. Bays : 3 Nos. or above.

j. Ports : 6 USB Ports (with at least 2 in front), audio ports for microphone and headphone in front.

k. Cabinet : Small form factor (Max. 16 Litres).

l. DVD ROM Drive : 8X or better DVD ROM Drive.

m. Networking facility : 10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up, out of band management using any standard management software.

n. Operating System : Windows 7 Professional / RHEL / SUSE Linux preloaded, as specified, with Media and Documentation and Certificate of Authenticity.

o. OS Certifications : Windows 7 OS and Linux certification.


q. Preloaded Software : Norton or McAfee or eTrust or e-Scan or Forefront or Trend Micro or PC Tool or Quick heal Antivirus (Latest Version) with 60 days License. (Included in case of Windows 7 only)
Note: For items under schedule 3, item sl. nos. 16 to 18 (i.e., Intel core i7 with trusted platform module 1.2) shall be supplied with trusted platform module 1.2.

2. **Submarine gel Electrophoresis system with Power Pack**

   **Specifications**

   **Electrophoresis unit**

   # A horizontal electrophoresis system should be able to run the gel size of 15x10 cm or 15x15 cm.

   # A system should include gel tray of size of 15x10 cm or 15x15 cm (2 pieces of each size).

   # System should include four 1.5 mm 15- & 20-well combs.

   # System should include 2 extra electrode set

   **Power supply**

   # Programmable power supply capable to operate two electrophoresis units simultaneously.

   # The output range should be up to 500 V

   # At least should come with a 3 years warranty on parts and labour and should be supplied with one accessory agarose gel solubulizing assembly.

3. **Sonicator**

   **Specifications**

   - Ultrasonic frequency: 20-25 kHz

   - Supplied probe(s) can process sample volumes ranging from at least 0.5 to 50 ml.

   - Should have programmable timer for at least 60 minutes.

   - Must be supplied with sound/noise enclosure including clamps for the safety of the user.
Must be supplied with probe stand and clamps.

It should be supplied with two years Warranty and on demand repair services as and when required.

Technical features described above should be supported by original illustrated catalog, with list of users (with all contact detail), and authentication of vendor’s business record in the form of Income Tax return for, at least, of last 3 years

Installation, testing should be conducted.

4. Ice flaking machine

Specifications

1. Stainless steel body and reentering door which assures an easier accessibility to ice
2. Minimum 20-25 kg bin capacity
3. More than 40-50 kg/day production
4. Should come with 3 years warranty
5. Compatible Stabilizer

5. Shaker Incubator with adaptors for different volume flasks and a compatible voltage stabilizer

Specifications

It should be a bench top Orbital Shaker Incubator

Temperature:

1. Range at least from 15°C below ambient to 60°C
2. Control accuracy ±0.1°C by microprocessor/ PID controlled

Shaking features:

1. Speed range at least 30 to 400 RPM.
2. It should have timer time of up to 99.9 Hrs or more.

3. Drive: By triple eccentric, brushless motor is preferable to avoid costly maintenance

4. It should have soft start and stop features to prevent culture spillage

5. It should have auto restart function after power interruption with non-volatile memory (retain set parameters after power failure).

• Display:
  1. LED for indication of speed, running time and temperature.

• Safety Features:
  1. It should have open lid cut-out switch to stop platform motion.
  2. It should have audible/ visible alarms for temperature and speed deviations.

• Essential Accessories:
  1. It should be supplied with universal platform (about 18 inches x 18 inches) having capacity to hold about 4-6 flasks of 2 liters. It should be supplied with the clamps/adaptors for flasks of 250 ml (8 Nos.), 500 ml (04 Nos), 1000 ml (02 Nos) and 2000 ml (02 Nos) and ~50 ml tube holder (1-2 Nos).
  2. It should be supplied with compatible wall mountable stabilizer

• Installation of an incubation tray for the petri plates is an optional requirement.

• It should come with 3 years warranty and on-site repair services as and when required.

• Technical features described above should be supported by original illustrated catalog, with list of users (with all contact detail), and authentication of vendor’s business record in the form of Income Tax return for, at least, of last 3 years.
6. **Bench Top Refrigerated Centrifuge along with Servo Stabilizer (01 Unit)**

**Specifications**

1. Microprocessor controlled
2. Speed: 14,000-17,000 rpm or better
3. Display: Large display of set parameters RPM, Time, Temp
4. Option for pulse/short/continuous run
5. Motorized lid lock & release for safety
6. Auto recognition for rotor & imbalance
7. CFC/HCFC free refrigerant
8. Time setting for up to 99 min with 1 min increment
9. Min. achievable Temperature: -8°C. Must maintain 4°C at Max speed
10. Pre-cooling of rotor and chamber function
11. Noise: ≤60 decibel
12. Rotor:
   - Fixed angle for 1.5/2.0 ml tube with adaptor for 0.2 ml tube (15,000 rpm or more)
   - Swing out rotor for cell culture plates (2,000 rpm or more)
13. Suitable voltage stabilizer
14. Two years warranty on the machine
    Operational Voltage: 220-240V/50Hz

**Optional:**

- Fixed angle for 15 & 50 ml tube (10,000 rpm) with separate quote of price

Technical features should be supported by original literature & list of user
7. **Analytical Balance along with Stabilizer (01 Unit)**

**Specifications**

1. Built-in calibration mode with auto calibration on touch of a button
2. Capacity 210g with 90mm pan size (200g to 240g)
3. Tare range: Full to capacity
4. Readability: 0.001mg
5. Average response time: 5 sec or better
6. Tall wind draft shield with easy shield removal & locking; side & top opening shielding windows for easy pan access
7. Backlit large-font digital display with sealed key pad for easy cleaning & maintenance
8. Operating voltage: 220 - 240V
9. Ambient conditions: 6 - 45°C with upto 85% humidity
10. Dust protection cover: washable and acid alkali, organic solvent resistant.
11. Suitable voltage stabilizer

Original illustrated catalogue to support technical specifications & Users’s list
Two years on site warranty

**Optional:** USB2/RS-232 port computer interface with easy data transfer to Windows® XP/7 OS or better based PC for GLP compliance.

8. **Deep Freeze -40°C along with Voltage Stabilizer (01 Unit)**

**Specifications**

1. Capacity 370-400 Lts or better
2. Microprocessor controlled Verticle (upright) deep freeze (-40°C) with 3-4 interior compartments/ adjustable shelves with preferably two internal doors
3. Digital display of temp with facility to set temp between -10 to -40°C with 1°C increment
4. CFC/HCFC free non-inflammable refrigerant
5. Hermetically sealed 2-stage compressor for cascade function
6. Polyurethane vacuum insulation with silicon gasket on doors for tight sealing
7. Double door with lockable outer door
8. Audio-visual alarm for temp. deviation, power failure, door open etc
9. Low noise level: ≤60 decibel
10. 50Hz/230V
11. 2.0 ton split AC for optimal operation during the summer season with voltage stabilizer
12. Suitable voltage stabilizer
13. Original illustrated catalogue for support of technical specifications/features
14. Two years onsite warranty

9. **Gradient Thermal Cycler along with Accessories (01 Unit)**

**Specifications**

1. Gradient Block to accommodate 96 x 0.2 ml tubes / PCR plate / PCR strips
2. Minimum sample working volume : 10 µl
3. Temperature control of the block : 4-99°C
4. Gradient Block over columns so that 12 temperature gradients can be run simultaneously.
5. Gradient selectable from 1°C to 24°C across the entire temperature control range
6. Gradient temperature range 30-99°C
7. Auto restart option in the event of power failure
8. Ability to store methods on external card for safety and multiple user capability
9. Should have heated lid system
10. Temperature Uniformity : ± 0.5°C
11. Temperature Accuracy ± 0.25°C
12. Heating Rate : ≥3.5°C
13. Ramp rate of heating should be at least 5°C/s or better.
14. Display : Large display of set parameters showing real-time assay conditions
15. Two years warranty on the machine
16. Compatible online UPS with at least 30 minute power backup should be provided (price should be mentioned separately).
17. Primer designing and oligo analysis software should be quoted as optional (price should be mentioned separately).

**Operating voltage:** 220-240/50Hz

Technical features should be supported by original literature & list of user
10. **Spectrophotometer with accessories (01 Unit)**

**Specifications**

1. Full spectrum 220-800 nm
2. Measure 1 μl sample with high accuracy for nucleic acid, protein, microbial cell culture OD and other general UV/VIS analysis
3. Computer compatible with software.
4. High absorbance range
5. Absorption precision should be 0.003.
6. Wavelength accuracy should be 1nm
7. 10 second measurement time
8. Large range of detection with detection of nucleic acid down to 2ng/microliter
9. No use of cuvettes or capillaries
10. Three years comprehensive warranty.
11. Computer compatible with software
   - Intel core i5 processor 3.10 GHz,
   - 1 TB SATA Hard Disk Drive,
   - 4 GB DDR III RAM with Graphics Card,
   - Original Windows 7 processor
   - DVD R/W, 6 USB Ports (with at least 2 in front),
   - Optical Mouse,
   - Multimedia Key Board,
   - 21" Bright view LED TFT Color Monitor, Speakers
   - Colour laser printer (quote separately)
   - Equipment should work even without computer

Original illustrated catalogue for support of technical specifications/features
List of users along with phone & e-mail

Suitable online UPS (1 KVA)
11. **Electrophoresis apparatus with Powerpack (01 Unit)**

**Specifications**

[A] Agarose-gel unit

1. Buffer tank, a safety lid with cables, and a leveling bubble with removable electrodes
2. Colour-coded, labelled electrodes and labelled base having arrow on the side of the base indicating the direction of the run to ensure proper orientation of the gel
3. UV-transparent gel trays with fluorescent ruler with gel-casting gates to cast gels right in the cell & combs to fit every need
4. Dimension of the gel casting tray
   a) **Mini Unit**: Two gel trays of approximate dimensions as 7x7 cm and 7x10cm with combs of different thickness (0.5, 0.75, 1.0, 1.5 mm) and different number of wells
   b) **Midi Unit**: Four gel trays of approximate dimensions as 15x7, 15x15, 15x20 and 15x25cm with combs of different thickness (0.5, 0.75, 1.0, 1.5 mm) and different number of wells
5. Multichannel pipette compatible combs
6. Variable range micropipettes 1-10µl, 2-20µl & 20-200 µl single channel for sample preparation and loading as essential accessories

[B] Vertical gel unit

1. Mini dual gel electrophoresis system for gel size of approximately 8x10 cm complete with buffer tank, safety lids, removable electrodes, gel casting unit, glass plates, spacers (of different thickness 0.5, 0.75, 1.0 mm) and coombs of different well numbers.
2. Accessories to be quoted as spares
   - Gel casting unit
   - Glass plates set (notched & rectangular)
   - Gel developing tray
   - Spare electrodes

**Power Pack**

1. Programmable output range of 10-300V, adjustable in 1V steps, 4-400mA and adjustable in 1mA steps with a maximum of 75 Watts.
2. Four pair recessed output terminals in parallel
3. Timer from 1min-99hr 59min.
4. Pause/resume function.
5. Constant voltage or constant current output with automatic cross-over.
6. LED display.
7. EN-61010, CE regulatory compliant.
8. Safety features such as no load detection, sudden load change detection, overload/short circuit detection and over voltage protection.
9. Operational at temperatures from 0-40°C and 0-90% humidity.
10. Input power range of 220-230 VAC, 50/60Hz, autoswitching.

Original illustrated catalogue for support of technical specifications/features
List of users along with phone & e-mail
Two years onsite warranty

## 12. **Gel-Doc System along with Accessories (01 Unit)**

### Specifications

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Configuration/ Component</th>
<th>Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Scientific Grade Cooled CCD Camera</strong></td>
<td>Peltier cooled CCD/EMCCD with at least 16 bit digitization capability</td>
</tr>
<tr>
<td>1.1</td>
<td>Peltier cooling efficiency</td>
<td>≤ 25°C from ambient as high as 30°C or more</td>
</tr>
<tr>
<td>1.2</td>
<td>CCD resolution</td>
<td>≥ 765 x 510 pixels</td>
</tr>
<tr>
<td>1.4</td>
<td>Pixel size</td>
<td>≥ 5µm x 5µm</td>
</tr>
<tr>
<td>1.3</td>
<td>Pixel density</td>
<td>≥ 65536 gray levels</td>
</tr>
<tr>
<td>1.5</td>
<td>Dynamic range</td>
<td>&gt; 4 orders of magnitude</td>
</tr>
<tr>
<td>1.6</td>
<td>Spatial Resolution</td>
<td>≤ 50 µm</td>
</tr>
<tr>
<td>1.7</td>
<td>Exposure/Integration Control</td>
<td>10µs to 3600 seconds in 1µs increments</td>
</tr>
<tr>
<td>1.8</td>
<td>Quantum efficiency</td>
<td>&gt; 80% peak between 500–650nm</td>
</tr>
<tr>
<td>1.9</td>
<td>Read out speed/ live video frame rate rendering</td>
<td>&gt; 15 fps full resolution @ 16 bit digitization with option for binning for region of interest to increase the FPS</td>
</tr>
</tbody>
</table>
| 1.10   | Lens assembly            | • 12.5 to 75 mm zoom or better with infinity corrected apochromat lens having moisture protection/ anti-fungal coating.  
• +1, +2, +4 & macro close up lenses  
• C-mount, f/1.2 or less  
• Built in ≥ 5 position filter wheel with at least 4 emission filters for imaging fluorescence from Acridine Orange (DNA/RNA bound), ethidium bromide, FITC, SYBR Safe™, SYBR Green, eGFP, YFP, Red Fluorescent Protein |
| 1.11   | Computer Interface       | IEEE 1394 FireWire or USB2 connectivity along with necessary connectors for Desktop/ notebook computer |
| 2 | **UV Trans-illuminator** | Compact trans-illuminator with provision for short-UV & mid-UV with easy switching between the two lamps and intensity regulator/ controller from 50% to 100%

- Suitable filters for UV (254/302 nm) and blue trans-illumination (495 nm) of at least 20 cm X 20 cm along with visible converter screen.
- Even illumination across the filter to eliminate tube patterns from images for increased sensitivity, resolution and accuracy in quantization through software.
- UV protection screen/shield for direct viewing of gels when the darkroom door is open.
- Spare UV lamps of 254 nm & 302 nm ≥15 watts; 4 each |

| 3 | **Darkroom** | Fully light tight darkroom suitable for advanced chemiluminescence and *in-vivo* living protein fluorescence applications.

- Robust, wide opening hinged door of SS/ epoxy painted non-rusting MS for easy access to chamber
- UV cut-off mechanism when door is opened with option for constant on for using trans-illuminator when door is open with safety warning indicator. Auto/ electronic locking for long duration imaging.
- Fold down white light table to provide bright illumination for white light applications such as Coomassie blue, Silver Stain gels, colony plates for colony counting etc.
- In-built (preferably LED module) epi-UV (302 nm) and epi-visible (white light) illumination with suitable excitation filters to cover the wave length range 300 nm – 650 nm.
- Easy access user friendly control panel for using different illumination modes. |

| 4 | **Image acquisition Software** | Windows XP sp3/ Vista sp1 certified software with user friendly button/ drop down menu controls for quick and accurate analysis of Protein gels, DNA gels, RNA gels, Colony plates, Coomassie blue gels, Silver stained gels, PCR, GFP, Capillary electrophoresis, RFLP, AFLP, RAPD, Pulsed field gel electrophoresis, Southern blots, Northern blots, Western blots, Multi-tier gels, MADGE gels (gridded gel formats), ZYMA gels, 1D densitometry, 2D spot densitometry, Microtitre plate analysis, Macroarray analysis etc.

The software should be capable of:

- Automatic lane and band detection with automatic corrections for track distortion and “smiling” bands
- Automatic analysis of multi-tier gels
- Different background subtraction methods
- Extensive calibration options (Rf, MW, BP and mass) with standards library
- High throughput screening analysis functions
- Band matching for lane relationship comparisons with dendrogram generation |
<table>
<thead>
<tr>
<th></th>
<th><strong>Desktop computer</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Desktop computer with IEEE1394 FireWire port and colour printer may be quoted as accessory with the following specifications:</td>
</tr>
<tr>
<td></td>
<td>• Intel Core 2 Duo 2.93 GHz, DDR2 RAM 2GB 800MHz FSB, 320GB SATA II 7200 rpm HDD, 19&quot; TFT Monitor, DVD ±R/RW 16X: 12X ±DL LS 12X RAM, at least 6 USB 2.0 Ports (4 back &amp; 2 front), at least 2PCI Slots, 1 each PCI Express x16 and x1, Internal Speaker in CPU and stereo speakers preferably built in the monitor, USB mouse and keyboard.</td>
</tr>
<tr>
<td></td>
<td>• WIN XP Pro with SP3 Licenced Media CD</td>
</tr>
<tr>
<td></td>
<td>• Colour laser printer</td>
</tr>
<tr>
<td></td>
<td>• Suitable online UPS/Stabiliser</td>
</tr>
</tbody>
</table>
The technical specifications of the offered ThyssenKrupp Elevator are as under:

**Qty. & Type** : 01 Nos. Passenger Elevators

**Capacity & Speed** : 10 Passenger (680 kg APPROX), **Speed** 0.60 mps to 0.80 mps

**Drive** : Variable Voltage Variable Frequency Drive

**Operation** : Microprocessor based Simplex Collective Selective Control with and without Provision of attendant control. Separate Landing Push Button Box for all Landings with scrolling indicator.

**Stops & Openings** : 04 Stops 04 Openings

**Floor Designation** : G+3, **Car travel** 12.00 meter

**Car Enclosure** : SS Hairline Finish Car with Fluorescent Light & Fan as per our standard Design.

**Car Entrance** : Automatic Center Opening Door in SS Hairline Finish.

**Landing Entrance** : Automatic Center Opening Doors in SS Hairline Finish with SS Hairline Finish Door Frames.

**Car size** : About 1350 mm wide 1300 mm deep 2100mm High./As per IS14665.

**Door Opening** : About 800 mm Wide 2000 mm High

**Elevator well** : Clear 2250 mm X 1950 mm deep (L x W)

**Machine room** : **Above Shaft**

**Elevator Pit Depth** : 1400 mm **Overhead** : 4780 mm

**Main supply** : 415 volts, 3 Phase, 50 Hz. A.C.

**Signals** : Indicators for all landings, Floor position Indicator for all Landings

**Desirable features** : Emergency Light,
**Anti Skid** PVC Flooring,
Car position & direction Indicator.
Infrared Screen,
Fireman’s Switch,
Alarm,
Display as Car Position & Direction Indication,
V3F Door Drive,
SS Suspended Ceiling,
Overload Protection

**Special Terms & Condition for Lift.**

1. The firms participating in the tender may quote their rates for buy back of our existing elevator complete with its motor, car etc.

2. It is mandatory for all the participating firms to quote the rate for the comprehensive AMC of lift after expiry of the guarantee/warrantee period. The AMC rate should be very clear i.e. service charges per annum and should be valid for 20 (twenty) years. For implementation of this clause, reasonable sum of security money will be deposited by the firm. The AMC rate should be submitted as follows-

   A- Rate for 1st five years from the date of expiry of warranty/guarantee period.
   B- Rate for next five years from the date of expiry of 1st five year AMC
   C- Rate for next five years from the date of expiry of 2nd five year AMC and so on.

3. The dimension of the elevator well, car travel height etc. mentioned in the specification may not be very accurate, therefore it will be the responsibility of the firm to whom the contract is awarded to visit the site immediately after award of the contract and measure all the dimensions required before execution of the supply and the installation of lift.

4. In order to train our staff to operate lift, the firm should engage his operator at least for a period of 15 days at the site of installation of elevator to operate the lift in presence of our Institute employee who will be deputed for operation of the lift. Nothing will be paid to firm on this account.

14. **Neopost, Electronic Postal Franking Machine**

Verson-6. Latest, with remote controlled, capacity for more than Rs. 100000/- (Accepted by the Post Office) Reputed firm Recognised by the Postal Deptt.
15. **Real Time PCR**

**Specifications**

- Real time PCR with block of 96 x 0.2 ml tubes or plate to run typical 0.2ml tubes, strips, and plates
- The base thermal cycler usable as standard PCR
- Gradient capacity in Real-time
- Minimum Ramping speed: 5°C per sec
- Detection of FIVE different fluorescent reporters in the same tube.
- Minimum four excitation and four emission channels each filter corresponds to one dye that ensures smooth differentiation of even dyes having high degree of spectral overlap.
- Peltier Cooling & heating for uniform temp control
- Excitation – Emission range: 450- 730nm
- No internal reference dye should be required. True minimum 4 Color Multiplexing with use of minimum 4 different fluorophores without the need of addition of any internal reference dye
- Analysis of multiple experiments from a single plate should be possible
- LED excitation source with Photodiode detector
- Should be an open system capable of running various chemistries so that different chemistries using TaqMan, Molecular Beacon, SYBR green etc all can be performed
- Temperature range 0– 100°C with accuracy of ±0.2°C and uniformity of ±0.4°C within 10 sec of arrival at 90°C
- Minimum sample volume: 1µl
- Should detect ≤ 10 fmol of fluorescein
- Should have mode for Melt curve analysis
- Should be supplied with suitable UPS to provide uninterrupted power supply.
- Should be supplied with split AC 2.0 Ton of standard make to maintain ambient temperature.
- PC for analysis as per specifications attached
- Warranty of 3 year and AMC rates for forth year
## Specifications of data work station

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processors</td>
<td>Intel Xeon Processor W3670 3.20 GHz, 12MB cache, 1066 memory, 4.8 GT/s QPI, Six-Core, HT, Turbo</td>
</tr>
<tr>
<td>Operating Systems</td>
<td>Genuine Windows® 7 Professional (32-Bit or 64-Bit) / Red Hat® Enterprise Linux® version 6</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® X58 Express</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMM slots; 16 GB expandable up to 32 GB @ 1333MHz</td>
</tr>
<tr>
<td>Graphics</td>
<td>NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</td>
</tr>
<tr>
<td>Hard Drives</td>
<td>2TB SATA / SAS @ 15k RPM with RAID (0,1)</td>
</tr>
<tr>
<td>Communications</td>
<td>2 Gigabit LAN Ethernet Card</td>
</tr>
<tr>
<td>Audio</td>
<td>Integrated High-Definition Audio with 24-bit</td>
</tr>
<tr>
<td>Port</td>
<td>• USB Port / USB 2.0/USB 3.0&lt;br&gt;• One Serial&lt;br&gt;• One Microphone&lt;br&gt;• One VGA , 1 Headphone , 2 Display Port&lt;br&gt;• One Mouse and 1 Keyboard Port&lt;br&gt;• IEEE 1394a port&lt;br&gt;• Integrated High-Definition Audio with 24-bit</td>
</tr>
<tr>
<td>Chassis</td>
<td>Tower</td>
</tr>
<tr>
<td>Monitor</td>
<td>18.5” LED Monitor with inbuilt speaker</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Multimedia USB Keyboard</td>
</tr>
<tr>
<td>Mouse</td>
<td>2-Button Optical Mouse</td>
</tr>
<tr>
<td>Storage Device Options</td>
<td>DVD-RW</td>
</tr>
<tr>
<td>Security</td>
<td>Chassis intrusion switch option, Setup/BIOS Password; I/O Interface Security; Intel Anti-Theft Protection option (iATP) Preloaded: Anti virus software</td>
</tr>
<tr>
<td>Printer</td>
<td>Laser printer, speed 15 pages/min, both side printing</td>
</tr>
</tbody>
</table>
16. **Digital Weighing Balance**

**Specifications**
1. Monopan Balance with Glass partitions on all sides
2. Capacity: 300 to 320 GM
3. Readability: 0.1 MG
4. Repeatability: 0.2 MG or better
5. Linearity: 0.3MG or better
6. Average response time: 3 seconds or better
7. Tare Range: Full to capacity
8. Display: LCD with backlit display
9. Weighing pan: Three side triangular weighing pan with at least 80mm dia.
10. Weighing modes: In grams, milligrams, Kilograms, oz, lb
11. Selectable application programs: Mass unit conversion by toggling, tare memory, net total, weighing in percent, counting, averaging
12. Internal Calibration
13. Must have RS232 port
14. Balance must be ISO certified
15. Warranty of at least two years must be provided
16. Suitable stabilizer to be Supplied

17. **Electrophoresis Unit**

**Specifications:**

**Horizontal Electrophoresis:**
1. Gel size 12x12 cm approx.
2. Should have facility to run 2 or more mini gels at a time.
3. Easy and separate gel casting
4. 2-24 samples can be run at a time.
5. Buffer volume less than 500ml
6. Made of high quality polycarbonate material for better transparency and durability
7. Should include all the required accessories i.e. combs, gel casting assembly and gel trays

**Mini Vertical Electrophoresis:**
1. Gel size 8x8 cm approx.
2. Minimum 15 samples can be run
3. Buffer volume 400 ml approx.
4. Gel casting device should have completely leak proof design.
5. Moulded buffer tank with platinum electrode
6. safe and user friendly
7. Should include all the required accessories i.e. combs, spacers, glass plates (notched, plain and dummy) and get casting assembly.

**Power Supply**

1. Microprocessor based control
2. Max. current 300A
3. Max. voltage 600V or more
4. Max Power 150W
5. Constant voltage or constant current
6. Capable of running four gels at a time.
7. Timer 16hrs with alarm or continuous
8. Over load or no load or leakage detection

**18. Specification for Electrophoresis 2-D (2-Dimensional) complete Function System**

- Fully integrated isoelectric focusing (IEF) system optimized to deliver high throughput, ease of use, speed, reproducibility, and high protein-loading capacity.
- The system should be able to handle CyDye labeled proteins and other light-sensitive samples.
- Programmable functions on the system should include rehydration time, platform temperature, current limit, voltage limit for each step, voltage step or gradient, and step duration.
- The software should record the run parameters over time and present data as graphs and log files.
- The system should be able to run at 10,000Volts, 1.5mA with resolution of 1uA, 12W. Peltier cooled base, 15 to 35ºC
- Should be supplied with the proper strip holder for simultaneous running of many strips and able to run up to 12 strips of 7,11,13,18,and 24 cm length.
- The system Control Software should be able to control up to four units at one time, each running a different program.
- Focusing tray ceramic/Universal
- Gel casting chamber for casting 2 dimension gels
- Mini SDS PAGE unit (1 number): approx. 8x10 cm gels, complete with accessories like combs (combs, Glass Plates, Spacers, Casting chamber, sample loading guide etc.).Should
be able to perform 2 dimension separation using IPG strip of various lengths.

- Medium SDS-PAGE units (1 number): approx. 14x16 cm gels to run 2 gels simultaneously complete with accessories. Power Pack (1 number) with, 600 V, 400 mA, 100W, with two recessed port in parallel.
- Power supply for small gels, big size gels and blotting with 500-600 V and 2.5 A Current
- Imaging system for visible (coomassie and silver), fluorescent gels (Sypro ruby, Flamingo, GFP etc) and chemiluminescent application with 16 bit CCD with 65536 grey level and -50 cooled with motorized zoom lens and having more than 1.2 mega pixel, mechanism to get reproducible image with < 5 % CV
- Advance 1 Dimension software with following feature: Densitometry, dendogram analysis, Phylogenic analysis, VNTR analysis, colony counting and array tool, Rapid molecular weight determinations with choice of multiple regression models
- Advance Software for 2D analysis with different stains including Coomassie, silver stain, Flamingo, DIGE etc)

**Blotting Apparatus (Semi Dry Blot)**: Transferring protein from gel onto a membrane, built-in power supply and offer automatic stopping feature. This safety feature should resets automatically when the power is turned off. The Semi-Dry transfer unit should accept gels up to 21 x 26 cm or four side-by-side minigels.

- **Image scanner**: Variable scanning rate for faster image acquisition. Optical Resolution 100,150,200,300,600 dpi (42.5um). Full, atleast, 16 bit Pixel depth for accurate quantitation for weak and intense image features. Selectable color (green, red, blue or white) for better sensitivity. Optical Density range 0.0 to greater than 4.0 O.D. Scan Area approx. 310x437 mm.
- **Software and PC**: For accurate analysis of 2-D electrophoresis gels, shortening the path from data acquisition to protein information suitable software should be supplied. It should perform analyses on all 2D gels, both 2-D Fluorescence Difference Gel Electrophoresis (2D-DIGE) and non-DIGE.

An IBM Compatible Data Station PC: Intel core two Duo processor, 2.3 GHz, 360GB HDD, 3GB RAM, DVD ROM, 17" TFT colour monitor, 1.0 KVA UPS, Deskjet printer and other standard accessories

The offer should cover sufficient quantity of all necessary reagents, buffers and Dry strips of different pH ranges and lengths, sufficient membranes for western blots, cleaning solutions for strip holders, container for rehydrating strips etc.
Accessory items:

- A Thermostatic circulator for controlling temperature in the range of -10 to 90$^0$C at ±0.1 C increment/sensitivity, coolant circulation at 12 L/min with internal pump including insulation tubings for cooling and 3-way valve set should supply.
- A suitable rocker platform for staining the gels should also offer. Both these thermostator and rocker platform should be quoted as accessory items.

Others (Terms and conditions)

2. Two year comprehensive warranty and additional three year service warranty
3. Installation should be carried out within two month of arrival. Delays will result in financial penalty @5% per day of the cost of equipment.
4. Vendor should provide a list of users with their telephone numbers, complete address
5. Vendor should provide training on use of equipment at their Center (for at least Two person 2 weeks) as well as on site (for 3-4 persons) complete installation and demonstration up to the level of user’s satisfaction is mandatory.

19. **Electronic Balance**

**Specification**

Readability 0.01mg  
Maximum capacity 120g  
Repeatability 0.03mg  
Linearity 0.2mg  
Size of weighing pan Φ 80mm
## CCTV Service System at IVRI Deemed University

### Item Requirement with Specification

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Indoor TVL Camera’s</strong>&lt;br&gt;POE Ready/ DC12V, 1/4” progressive scan sensor, Dual Stream, Low Light/ Day Light, .01 lux, 4mm H.264, 10/100M Ethernet, Real Time 25/30fps, 3 axis adjustment, vandal proof mini dome camera</td>
<td>9</td>
</tr>
<tr>
<td>2.</td>
<td><strong>IR IP TVL Camera’s</strong>&lt;br&gt;540 TVL, 10-20 meters, 0Lux With IR, DC12V, 1/3 Sony Super HAD CCD, Dual Stream, Low Light/ Day Light, H.264, IP66, 10/100M Ethernet, PAL: 704x576 NTSC: 704x480 Real Time 25/30fps</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td><strong>IP IR Moving Camera</strong>&lt;br&gt;540 TVL, DC12V, 1/3 Sony Super HAD CCD, Dual Stream, 23X optical zoom, 256 presets, H.264, IP66, 10/100M Ethernet, Real Time 25/30fps, minimum illumination Color: 0.2 lux@F1.6, B/W: 0.02 lux@F1.6, 0 lux with IR, PAL: 752(H)x582(V); NTSC: 768(H)x494(V), Rotation speed can be adjusted automatically according to zoom multiples, 8 patrols, up to 32 presets per patrol, 80 mtr IR, User authentication (ID and PW), host authentication (MAC address)</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td><strong>IP Recorder</strong>&lt;br&gt;H.264/MPEG4, Dual-Stream, Multi-channel synchronous playback, VGA &amp; CVBS output, HDMI Interface, 2*USB 2.0, RS485, RS232, with Audio I/O, Include CVMS (Central Video Management Software) and Mobile Surveillance Application Front panel operation, IR remote control and mouse operation, 32 IP Cameras (4CIF)/4 IP Cameras(HD720p)/4 IP Cameras (HD1080p)/2 IP Cameras(5MP), 2 SATA Interfaces, alarm I/O: 4/1, 1U case, 19&quot; , 10/100M Ethernet</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Power Supply for IP cameras</td>
<td>7</td>
</tr>
<tr>
<td>6.</td>
<td>Video surveillance HDD 2TB</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Video Management Software (supporting up to 256 users)</td>
<td>one</td>
</tr>
</tbody>
</table>
suitable for configuration of upto 256 cameras, cyclic preview, multi screen cycle, preview control, Main stream and sub stream, digital zoom, record and capture local image, voice talk and broad casting, remote control panel, PTZ control, 3D positioning, event playback, Record search, Dynamic Analysis, Video Loss Detection, Text overlay, Multi account management

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<table>
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<tbody>
<tr>
<td>7.</td>
<td>UPS 2 KVA Online with 2 hours backup</td>
</tr>
<tr>
<td>8.</td>
<td>Ethernet switch 10/100 16 port</td>
</tr>
<tr>
<td>9.</td>
<td>LED 40&quot; with HDMI port</td>
</tr>
<tr>
<td>10.</td>
<td>Required Wire and wiring with casing and capping</td>
</tr>
</tbody>
</table>

**Warranty and AMC**

- The bidder warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and they incorporate all recent improvements in design and materials unless provided otherwise in the Contract.
- This warranty shall remain valid for a period of a minimum 36 months after the Goods or any portion thereof as the case may be, have been delivered, commissioned and accepted at the final destination indicated in the Contract.
- The bidder will submit the rates of AMC for five year after the expiry of warranty period.

**Eligibility Criteria**

- The bidder should be in the business of supply, installation & commissioning of IP CCTV Surveillance System for at least five years.
- The bidder must have completed supply, installation & commissioning of IP CCTV Surveillance System at least 10 site in last three year. A documentary proof is to be provided by the firm
- The bidder should have technical support office in the Uttar Pradesh preferably in Bareilly.
• Details & proof of service facilities for Technical Support on services, maintenance and availability of hardware components and manpower be attached.

• The bidder shall not assign or sub contract, in whole or in part, its obligations to perform under the Contract.

Scope of Work

• Scope of work comprises of supply, installation & commissioning of IP CCTV Surveillance System required to control and monitor the examination hall and three different floor of the IVRI Deemed university building.

• Eight Indoor TVL Cameras will be installed at the examination hall of the university, six IR IP TVL cameras will be installed at the three different block of the university building, one Indoor TVL Cameras will be fixed at the examination section of the building and one IP IR Moving Camera will be installed at the reception of the building.

• Bidder will also install and commission the IP recorder and video management system software.

• Powering on equipment after ensuring correctness of terminations, interfaces and power supply and making the system ready for testing and commissioning.

• Proposed CCTV system shall be an open standard based integrated system with IP network centric functional and management architecture aimed at providing high-speed manual/automatic operation for best performance.
21. **Supply, configuration and commissioning of network switches and accessories with VLAN implementation and documentation.**

### Annexure – I

<table>
<thead>
<tr>
<th>S. No</th>
<th>Item Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVE COMPONENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>24 Port Gigabit L2 Stackable Switch With 4 Gigabit Combo Port</td>
<td>18</td>
</tr>
<tr>
<td>2.</td>
<td>1000Base-LX SFP Transceiver LC Type (10kms) Single Mode</td>
<td>8</td>
</tr>
<tr>
<td>3.</td>
<td>1000Base-LX SFP Transceiver LC Type (10kms) Multi Mode</td>
<td>28</td>
</tr>
<tr>
<td><strong>OFC Component</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>PATCH CORD LC-SC MM DUPLEX LENGTH- 2m</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>PATCH CORD LC-SC SM DUPLEX LENGTH- 2m</td>
<td>8</td>
</tr>
<tr>
<td>3.</td>
<td>PIGTAIL SC MM SIMPLEX LENGTH- 1m</td>
<td>60</td>
</tr>
<tr>
<td>4.</td>
<td>PIGTAIL SC SM SIMPLEX LENGTH- 1m</td>
<td>48</td>
</tr>
<tr>
<td>5.</td>
<td>ADAPTOR SC MM -ZR-SLEEVE</td>
<td>60</td>
</tr>
<tr>
<td>6.</td>
<td>ADAPTOR SC SM -ZR-SLEEVE</td>
<td>48</td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Installation, testing, configuration and commissioning of network switches</td>
<td>18</td>
</tr>
<tr>
<td>2.</td>
<td>Configuration and Implementation of VLAN for whole network</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Documentation of whole network</td>
<td>1</td>
</tr>
</tbody>
</table>

### Specification

1. **24 Port Gigabit L2 Managed Stackable Switch With 4 Gigabit Combo Port**

| i. Port: | 24 10/100/1000 Base-T ports, 4 Gigabit Ethernet combo ports (RJ-45/SFP), 1 DB-9 console port |
| ii. Switching Capacity | 56Gbps |
| iii. Forwarding Rate | Min 40 Mpps |
| iv. MAC address | 8 k |
| v. Flash Memory | Min 8mb |
| vi. Stackability | • Physical Stacking: Stacking over 1G copper ports |
| vii. Features | • Minimum Physical Stacking Units : 12  
• Min Physical Stacking Bandwidth : 4Gbps  
• IEEE 802.1D multiple Spanning Tree group, IEEE 802.3ad Link Aggregation or equivalent, IEEE 802.1p (Priority Queues), IEEE 802.1x security,  
• Jumbo Frame upto 9600  
• IGMP Snooping  
• Loop Protection  
• Port Mirroring  
• Support for IPv6  
• Support for Virtual Networking (802.1Q, VLAN Groups, Private VLAN)  |
| viii. Management | • Through Telnet, HTTP and NMS.  
• Web based management interface  
• Virtual LAN Management feature.  |
| ix. Quality of Service | • 4 hardware queues  
• Strict priority and weighted round-robin  
• Queue assignment based on DSCP and class of service  
• Bandwidth Control  
  o Egress : min 16Kbps Granularity  
  o Ingress : min 16Kbps Granularity  |
| x. Security | • Local Authentication with support for manual Privilege definitions assignment  
• 802.1x Authentication  
• Port Security  
• Automatic HTTPS redirection  
• DHCP Snooping  
• ARP Inspection  
• IP Source Guard  
• Management Access Filter for HTTP/HTTPS, SNMP, TELNET/SSH  
• Broadcast, Multicast, Unicast Storm Control Based on Packets per seconds  
• Flow based Rate limiting based on Packets per second (PPS)  |
2. **1000Base-LX SFP Transceiver LC Type (10kms)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY Type</td>
<td>IEEE 802.3z 1000Base-LX</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>Single Mode</td>
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<tr>
<td>Connector</td>
<td>LC</td>
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<tr>
<td>Wavelength</td>
<td>1310nm</td>
</tr>
<tr>
<td>Maximum Distance</td>
<td>10km</td>
</tr>
<tr>
<td>Operating Temperature</td>
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3. **1000Base-LX SFP Transceiver LC Type (10kms)**

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<tr>
<td>Operating Temperature</td>
<td>0 ~ 70</td>
</tr>
</tbody>
</table>

4. **PIGTAIL SC SM SIMPLEX LENGTH- 1m**

- Simplex LC/SC, 9/125 micron SM fiber, factory terminated ceramic connectors. Qualifies as per ITU-T G652 D Fiber.
- Plastic molded plug type connectors
- Specially designed Low Smoke Zero Halogen Outer Sheath
- Standard 2.5mm ceramic ferrule
- Compact in size and easy to connect
- Recommended by EIA/TIA 568 Specifications
- Macrobending, Max. (100 turns) 0.05 dB (1,310/1,550nm@50mm) 0.05 dB (1,625nm@60mm) Macrobending, Max. 0.05 dB@1,550nm (1 turns@32mm mandrel).
- Length 1 Mt.

5. **PIGTAIL SC MM SIMPLEX LENGTH- 1m**

- Simplex LC/SC, 9/125 micron SM fiber, factory terminated ceramic connectors. Qualifies as per ITU-T G652 D Fiber.
- Plastic molded plug type connectors
- Specially designed Low Smoke Zero Halogen Outer Sheath
- Standard 2.5mm ceramic ferrule
- Compact in size and easy to connect
- Recommended by EIA/TIA 568 Specifications
- Macrobending, Max. (100 turns) 0.05 dB (1,310/1,550nm@50mm) 0.05 dB (1,625nm@60mm) Macrobending, Max. 0.05 dB@1,550nm (1 turns@32mm mandrel).
- Length 1 Mt.

6. **Adaptor SC SM -ZR-SLEEVE Simplex**
Supply, configuration and commissioning of network switches and accessories with VLAN implementation and documentation.

Eligibility Criteria

1. The bidder should be an exclusively IT company of repute having expertise, sound financial base and capability to execute said work using state of the art technology with best industry practices available in the global market. The firm should be in existence and operating in India for the last Ten Years.

2. The bidder should be in the business of supply, installation & commissioning of LANs for at least five years.

3. The bidder should be a manufacturer, authorized distributor or large-scale system integrator of the required networking equipment.

4. Bidder should have proven experience of successfully completing at least five projects of supply, installation, configuration, testing and commissioning of network switches and VLAN implementation with value of each project being at least Rs 50 lakhs during last three financial years preferably in Uttar Pradesh / Uttarakhand. Out of these two projects, one project should have been done with similar components quoted in the offer.

5. Proof of satisfactory completion along with scope of these works to be submitted with the bid.

6. An undertaking by the authorized person of the company (self certificate) that the bidder hasn’t been blacklisted by a Central /State Government, institution and there has been no litigation with any Government Department/PSU/Corporation in Central/State Government on account of similar services.

7. The bidder should have technical support office in the NCR / Uttar Pradesh preferably in Bareilly.
8. Details & proof of service facilities for Technical Support on services, maintenance and availability of hardware components and manpower be attached.

9. The bidder should have a minimum turnover of Rs. 5 crores (Rupees five crore only) in each of the last two years on account of supply, installation and commissioning of Networks. Relevant proof in the form of audited annual report or balance sheet duly certified by Chartered Accountant certifying the turn over in the field of Networking should be submitted.

10. The bidder should have Authorization from concerned Original Equipment Manufacturers (OEMs) for supply and support for all active and passive components quoted for at least five years (Authorization Certificates to be attached).

11. The bidder shall not assign or sub contract, in whole or in part, its obligations to perform under the Contract.

**Warranty and AMC**

1. The bidder warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and they incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

2. This warranty shall remain valid for a period of a minimum 36 months after the Goods or any portion thereof as the case may be, have been delivered, commissioned and accepted at the final destination indicated in the Contract.

3. The bidder will submit the rates of AMC for five year after the expiry of warranty period.

4. The bidder shall post a well qualified and experienced Service Engineer at the site at his own expense and get the defects/bugs removed in the system as detected by the Purchaser during the period of warranty.

**Documentation**

The bidder shall supply the following documents at the time of complete set of Technical/Operation and Maintenance Manual

1. An inventory of items delivered.
2. VLAN Switching diagram with node and connectivity details
3. Rack wise inventory
TECHNICAL SPECIFICATION

1. Scope of Work

- Scope of the work comprises of supply, installation, configuration, testing and commissioning of gigabit network switches.

- It is clarified that the existing switches at IVRI Izatnagar is of Nortel make. It is, therefore, desired that to have conformity and compatibility of the equipment, component must be equivalent or better.

- Bidder has also to implement / configuration the VLAN at IVRI Izatnagar. To design the VLAN, one L3 switch will be provided.

- Bidder has also to fix and cabling the switches into the existing racks. If additional cables are required to fix the switches, it will have to be provided by the bidder at its own cost.

- Scope of work also includes the powering on the switches with fiber module after ensuring correctness of configuration and making them ready to incorporate into LAN.

- Bidder has to do configuration of the switches with module and VLANs as per the requirements of IVRI including Network segmentation and Network Monitoring

- Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment's and/or needed for erection, completion and safe operation of the equipment's as required by applicable codes though they may not have been specifically detailed in the technical specification.

- The Bidder shall be responsible for providing all materials, equipment's, and services, specified or otherwise, which are required to fulfill the intent of ensuring operability, maintainability, and reliability of the complete equipment covered
under this specification within his quoted price. This work shall be in compliance with all applicable standards, statutory regulations and safety requirements in force of the date of award of this contract.

- The bidder shall also be responsible for deputing qualified personnel for installation, testing, commissioning and other services under his scope of work as per this specification. All required tools and tackles for completing the scope of work as per the specification is also the responsibility of the bidder.

- The Bidder shall furnish two complete sets of system and equipment instruction manuals and detailed installation operating and maintenance documentation along with the CDs for the same. Manuals shall describe system operation, shall include detailed system and components description and shall cover the installation, operation, care and maintenance of all system components including diagnostics.