

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND  
RESEARCH THIRUVANANTHAPURAM [IISERTVM]**


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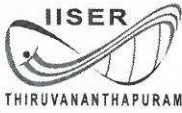
CET CAMPUS, ENGINEERING COLLEGE. P.O  
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KERALA, INDIA

**IISER/PUR/PT/1/16**

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**(IFT)**

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IISER/PUR/PT/16/15

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KERALA, INDIA

18<sup>th</sup> March 2016

**INVITATION FOR TENDER (IFT)**

Sealed and super scribed **Two-Part** bids are invited for supply, installation and commission of the following equipment's.

**I. FLOOR MODEL REFRIGERATED ULTRACENTRIFUGE - 1 No.**

- |                                     |   |                                  |
|-------------------------------------|---|----------------------------------|
| 1. IFT No.                          | : | IISER/PUR/7418/15                |
| 2. DUE DATE                         | : | 24 <sup>th</sup> May 2016 [4 PM] |
| 3. DATE OF OPENING OF TECHNICAL BID | : | 25 <sup>th</sup> May 2016 [3 PM] |
| 4. DATE OF OPENING OF PRICE BID     | : | Will be notified later.          |
| 5. COST OF TENDER#                  | : | Rs. 500 + 5% VAT                 |
| 6. EMD [BID SECURITY] **            | : | Rs. 1,50,000/-                   |
| 7 QTY REQUIRED                      | : | 1 No.                            |

**Specifications for floor model refrigerated ultracentrifuge**

Maximum g force: 800,000xg or higher

Speed control accuracy should be +/- 5 rpm or better

Temperature range: 2 – 40 degree C, Accuracy: +/- 1 degree or better

Should be equipped with appropriate imbalance tolerance feature

CFC free thermoelectric air-cooled refrigeration

Timer: Up to 99hr or more with hold option.


Fully programmable, and programs can be stored

With appropriate safety features like over-speeding, inertia check are desirable.

**ROTORS (SHOULD BE QUOTED SEPARATELY):**

- 1) Titanium fixed angle rotor (1 number) maximum speed up to 250,000 g or more with, maximum (full) volume capacity: With total volume capacity: anywhere between 400 to 500 ml.

Tubes and accessories: Should include (1) at least 50 number of tubes appropriate for the rotor with caps/spacers, (2) adaptors to accommodate various volumes and (3) tube racks (number 2).

  
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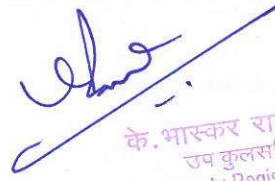
- 2) Titanium fixed angle rotor (1 number) maximum speed up to 300,000 g or more with, maximum (full) volume capacity: total volume capacity anywhere between 100 to 200 ml.  
Tubes and accessories: Should include (1) at least 50 number of tubes appropriate for the rotor with caps/spacers, (2) adaptors to accommodate various volumes, and (3) tube racks (number 2.)
- 3) Titanium Swing-bucket rotor (1 number): maximum speed up to 200,000 g or more with, maximum (full) volume capacity: total volume capacity anywhere between 80 to 100 ml.  
Tubes and accessories: Should include (1) buckets, and (2) at least 50 numbers of reusable tubes, and (3) adaptors to accommodate tubes of various volumes, and (4) tube racks (number 2).
- 4) Titanium Swing-bucket rotor (1 number): maximum speed up to 350,000 g, or more with, maximum (full) volume capacity: total volume capacity anywhere between 20-50 ml.  
Tubes and accessories: Should include (1) buckets, and (2) at least 50 numbers of reusable tubes and (3) adaptors to accommodate tubes of various volumes, and (4) tube racks (number 2).
- 5) **Installation and Commission should be done and shown separately.**
- 6) Equipment should be covered with warranty for 3 years.
- 7) Bidder should also provide a detailed list of users of the quoted system in India with contact details.

**Other Requirements:**

Bidder should attach detailed technical brochure in support of the quoted configuration and a compliance statement <sup>charges</sup> indicating all the specifications.

**Optional:**

Should quote AMC charges per year on completion of warranty period. <sup>indicating</sup>



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**HIGH SPEED REFRIGERATED FLOOR MODEL CENTRIFUGE - 2 Nos.**

1. IFT No. : IISER/PUR/7420/15
2. DUE DATE : 24<sup>th</sup> May 2016 [4 PM]
3. DATE OF OPENING OF TECHNICAL BID : 25<sup>th</sup> May 2016 [3 PM]
4. DATE OF OPENING OF PRICE BID : Will be notified later.
5. COST OF TENDER# : Rs. 500 + 5% VAT
6. EMD [BID SECURITY] \*\* : Rs. 1,60,000/-
7. QUANTITY REQUIRED : 2 Nos

**SPECIFICATIONS FOR HIGH SPEED REFRIGERATED FLOOR MODEL CENTRIFUGE**

Must be able to run select rotors up to 50,000xg or above and must allow to set and control in both RPM (Revolutions per Minute) and RCF (Relative Centrifugal Force) directly for any selected rotor.

- The centrifuge chamber must be a closed system.
- Should be microprocessor-controlled, with user-friendly operating controls.
- The system should have auto rotor detection system to increase safety.
- Actual and Set run conditions should be visible during operation.
- Should have at least 8 acceleration and 9 deceleration profiles.
- Should have the capability to create and store at least 100 programs or more.
- Should have the real time control or delayed start/stop feature to allow users to program the centrifuge at a future operations.
- Should offer a temperature set range of at least 0°C up to + 35°C with a temperature increment of at least +1°C or better , with an accuracy of +/-2°C or better.
- Should be able to run without anchoring to floor via bolts.
- Should have a brushless, high frequency direct drive motor.
- Refrigerant should be CFC-free
- Should be capable of doing continuous flow centrifugation
- Should be able to spin/accommodate carbon fiber or Aluminum rotors.
- Automatic locking system for rotor fixing is preferable
- Should provide suitable voltage stabilizer system
- Bidder should provide at least 3 years warranty for the instrument as well as the rotors.
- Bidder should specify all the pre-installation requirements.

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Bidder should install the equipment in transit campus, dismantle after few years, transport and reinstall the whole system from our transit campus to our permanent campus at **Vithura** without additional cost.


**ROTORS SPECIFICATIONS (ALL ROTORS MUST BE INCLUDED IN THE QUOTE AND INDIVIDUAL PRICE MUST BE PROVIDED)**

All rotors should be made of carbon fiber or Aluminium and should be autoclavable.

Type	Material	Maximum Speed RCF (x g)	Capacity in liters	Accessories
Fixed angle rotor with lid	Carbon fiber/ Aluminium	At least 15000g or higher	Total capacity should be at least 6 Litre (to hold at least 6 bottles with 1 litre capacity)	Appropriate centrifuge bottles, lids and "O" rings (10 numbers each) with adapters and other accessories to use 500 ml bottles
Fixed angle rotor with lid	Carbon fiber/ Aluminium	At least 16000g or higher	Total capacity should be at least 1.5 Litre (to hold at least 6 bottles with 250 ml capacity)	Appropriate centrifuge bottles, lids and "O" rings (10 numbers each) with adapters and other accessories
Fixed angle rotor with lid	Carbon fiber/Aluminium	At least 47000g or higher	At least 0.4 Litre (to hold at least 8 tubes with 50ml capacity)	Appropriate centrifuge tubes, and lids (100 numbers each) with adapters and other accessories
Swing bucket	Carbon fiber/Aluminium	At least 3700g or higher	At least 2 Litres (to hold at least 4 bottles with 500ml capacity)	1.Appropriate centrifuge bottles, lids and "O" rings (10 numbers each) with adapters and other accessories. 2. Sets to accommodate microplates (two sets)

**OPTIONAL**

Three years AMC, post warranty period should be quoted separately.

  
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**III. ATOMIC FORCE MICROSCOPE — 1 No.**

1. TENDER NO. : IISER/PUR/6561/15
2. DUE DATE : 24<sup>th</sup> May 2016 [4 PM]
3. DATE OF OPENING OF TECHNICAL BID : 25<sup>th</sup> May 2016 [3 PM]
4. DATE OF OPENING OF PRICE BID : Will be notified later.
5. COST OF TENDER # : Rs. 500 + 5% VAT
6. EMD [BID SECURITY] \*\* : Rs. 4,50,000/-
7. QUANTITY REQUIRED : 1 Nos

**TECHNICAL SPECIFICATIONS**

An ambient Atomic Force Microscope (AFM) integrated with an optical microscope for (i) topographical (and electrical) surface characterisation of metals and oxide thin-film samples, soft materials (polymers), ceramics, nanoparticle-polymer composites, and biological samples e.g. cells, microtubules etc. and (ii) fluorescence imaging. The quoted AFM should be robust and versatile, suitable for a multi-user environment.

The AFM system should be integrated with an inverted optical microscope (from any one of the following sources: Zeiss, Nikon, Olympus or Leica) without any compromise in AFM performance. This integration should not block the use of the optical microscope. The optical microscope should be capable of brightfield imaging, phase contrast/DIC imaging and fluorescence imaging.

**GENERAL AFM SPECIFICATIONS:**

1	XY scan	(large area scanner ~ 100µm x 100µm) Decoupled XY and Z scanner, Closed loop capability
2	XY coarse positioning facility	a tip XY scanning design to facilitate coarse positioning over entire sample area
3	Z range	10 µm or higher
4	Typical Sample size	100 mm x 100 mm (or larger)
5	Access to various input and output signals to/from the AFM controller, e.g. data signals and analog inputs for control and/or simultaneous recording of user processed/generated signals	
6	Tip side optical imaging of tip/cantilever - sample area with typically 10x video observation facility during probe - sample approach - primarily for samples on opaque substrates.	
7	Active Vibration Isolation Table	

**AFM OPERATING MODES :**

1. Contact, Non-Contact/Tapping Mode imaging capability on soft and hard surfaces.
2. Conductive AFM mode, Force Modulation imaging, 2D Phase and lateral force imaging, Electrostatic Force Microscopy, Magnetic force Microscopy.
3. Kelvin Probe Force Microscopy
4. Include all attachments required to implement the various modes of the AFM specified above.

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## 5. Summing Amplifier for modulating sample/tip bias (if applicable)

Controller + Control Computer for Data Acquisition + Software + GUI for the AFM and optical microscope. The software must include functionality for direct overlay of the optical microscope image with AFM data. The overlay procedure must include an integrated procedure to provide registration between both image data sets. It should allow the user to obtain an optical/fluorescence image through the optical microscope and scan a selected area of that image with the AFM. Vendors are to supply information regarding the overlay registration, linearity and accuracy, relevant to the above requirement.

Start-up Kit including demonstration/standard samples (Au surfaces, Mica etc), XY and Z calibration standards for various scanner(s) supplied. Set of cantilevers and standards for all AFM operation modes (specified above). ALL necessary accessories.

**Inverted Confocal Microscope Specifications**

A	<ol style="list-style-type: none"> <li>1. 6-position objective nosepiece with motorized fluorescence turrets and DIC setup</li> <li>2. Z-focus drive should be motorized with minimum z-step resolution of 25 nm or better.</li> <li>3. Stage should be capable of holding inserts for slides (1in x 3in) and culture dishes (35, 60 mm and multiwall). XY stage as compatible with AFM (preferably motorized)</li> <li>4. High resolution plan apochromatic objectives: 20x/25x/0.70 or more NA multi immersion, 40x/0.8 or more NA, Dry 60/63x/1.40 NA oil immersion, DIC 100x/1.40 NA oil, DIC With complete DIC accessories. Optics should be of high transmission and diffraction-limited.</li> <li>5. A suitable light source for epifluorescence; fluorescent filters for DAPI, FITC/GFP, cy3, TRITC, cy5 should be offered.</li> <li>6. A high resolution cooled CCD digital camera (cooling temp -20 degree C or below) to acquire white-field data.</li> </ol>
B	<p><b>Scanner and detector</b></p> <ol style="list-style-type: none"> <li>1. High sensitivity laser point scanning and detection unit with built-in spectral detectors (2PMT-based detectors) for highly efficient fluorescence signal collection. Should have additional transmitted PMT for simultaneous imaging of morphological features of the samples along with fluorescence data.</li> <li>2. The detection unit should be capable of conventional intensity based and spectral confocal imaging for all channels.</li> <li>3. The system should be capable of recording emission spectra with minimum spectral resolution of 5 nm or better over the visible range.</li> <li>4. Apochromatically corrected pinhole optics. The pinhole should be continuously variable with software control</li> <li>5. Scan Speed: 512 x 512 pixels @ 8fps</li> <li>6. All the fluorescence detectors of the scan head should have freely selectable emission bandwidth detection capability to suit to the emission spectra of the dyes.</li> </ol>
C	<p><b>Laser Module</b></p> <p>2 Solid State diode lasers (i) Any one of wavelength 458/488/514 nm and (ii) 561 nm. Laser should be capable of idling in standby mode, when not in use</p>




	Typical lifetime ~ 15000 hrs.
E	<b>System control and Imaging software</b>
	<ol style="list-style-type: none"> <li>1. A system software which should be able to control all functions of microscope, the digital camera, all scanners, the lasers and image acquisition and processing.</li> <li>2. An offline version of the software in addition to the system-run software should be provided.</li> <li>3. Line, curved line, frame, Z-stack, time series imaging capabilities, object or particle tracking and analysis of parameters.</li> <li>4. Making movies from time lapsed Z-stack images.</li> <li>5. Standard geometrical measurements like length, areas, angles etc along with intensity measurements.</li> <li>6. 3D image reconstruction/rendering from a Z-stack image series.</li> <li>7. Co-localization and histogram analysis with individual parameters.</li> </ol>

**OTHER REQUIREMENTS:**

1. System should be robust for use by multiple users
2. Onsite Installation of Equipment and demonstration/training of all modes purchased on typical samples and of the AFM-optical microscope integration is necessary.
3. Demonstration of the XYZ calibration with calibration samples for AFM.
4. Hardcopy of all manuals.
5. Vendor should provide brochures/documentary evidence supporting technical compliance.
6. Vendor should clearly specify the after sales service and application support capabilities. **Bidder should provide 3 years warranty for whole system.**
7. Vendor should include the supply of appropriate online sine-wave UPS system with 1 hour battery back-up to support the complete system (from any one of the following suppliers: Emerson/GE/APC)
8. Vendor should provide all pre-installation requirements to have the system installed in ideal room conditions.
9. Vendor should also provide a detailed list of users of the quoted system in India with contact details.
10. **Vendor should dismantle and reinstall the whole system from our present transit campus to IISER permanent campus at Vithura at no additional cost.**

**OPTIONAL ITEMS:**

1. GaAsP detector (1) for detecting low-intensity signals
2. A 640 nm laser for excitation
3. An Image de-convolution module (3D).
4. Environment control enclosure
5. **Beyond the warranty period, AMC charges for 3 years should be quoted.**

  
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#### **IV. SUPPLY, INSTALLATION & CONFIGURATION OF ROUTERS, UTM'S AND LAYER II MANAGED SWITCHES**

1. TENDER NO. : IISER/PUR/7710/16
2. DUE DATE : 24<sup>th</sup> May 2016 [4 PM]
3. DATE OF OPENING OF TECHNICAL BID : 25<sup>th</sup> May 2016 [3 PM]
4. DATE OF OPENING OF PRICE BID : Will be notified later.
5. COST OF TENDER # : Rs. 500 + 5% VAT
6. EMD [BID SECURITY] \*\* : Rs. 1,00,000/-

#### **Scope of Work**

IISER Thiruvananthapuram owns two 100 Mbps leased circuits. These circuits have to be configured in load sharing mode. The vendor is required to supply, install and configure two routers. BGP protocol should be configured in the routers in such a way that even if one Internet circuit fails, all internally hosted applications are visible to the Internet through the other link and the circuits are configured for inbound load sharing. The vendor is also required to supply, install and configure two Unified Threat Management (UTM) appliances. The UTMs are required to be configured in high-availability active-active mode utilizing the dual WAN circuits in load sharing mode. Firewall, NAT, Application filtering, IPS, gateway anti-virus, Site-to-Site VPN, SSL VPN, reporting module and other UTM features as required should be configured and demonstrated.

#### **Items required**

Item	Quantity
WAN Router	2
UTM appliance	2
Managed 8 port 10/100/1000 RJ-45 Layer 2 switch	2

#### **Specifications**

##### **WAN Router**

Throughput	1Gbps upgradable to 2Gbps
Interfaces	2x10/100/1000 RJ-45 ports 2x10/100/1000 SFP ports
Data plane memory	2GB
Control plane memory	4GB
Flash memory	8GB
Features	IPv4, IPv6, MPLS, QoS, Syslog
Remote management	RMON, SNMP v1,2,3
Routing protocols	BGP, OSPF, Static IPv4 routing, Static IPv6 routing, Policy based routing, RIP, RIP-2,
Power supplies	Dual redundant
Others	Rack mountable
Approved brands	CISCO/HP/Juniper
Warranty	3 year onsite NBD

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**UTM Appliance**

10/100/1000 ports	RJ-45	6
10G SFP+ ports		2
Throughput when Firewall, IPS, Web & Application Filtering and Anti-Virus features turned on		4Gbps
New connections/sec		200000
Maximum concurrent connections		5000000
General UTM Features	Hardened OS Stateful packet inspection Unlimited user license Integrated Content filter, Application control, IPS and gateway anti-virus Filtering based on username, ip address, ports and protocol Filtering on fragmented packets User defined multiple security zones Source and Destination NAT Advanced NAT capabilities for supporting all applications and services including H.323 and SIP MAC based filtering Multi WAN link load balancing IPv6 Ready Active-Active and Active-Passive high availability support On appliance reporting with 1TB HDD	
SSL VPN	Browser based access SSL VPN Client based access LDAP and AD based authentication	
VPN	IPsec, L2TP, PPTP DES, 3DES, AES MD5, SHA-1 Diffie Hellman Groups 1,2,5,14,15,16	
Management	CLI and browser based GUI Role based access control Command line interface using telnet and ssh SNMP v1,2,3	
User authentication	User identity based access control for all TCP/IP applications HTTPS based secure authentication Local database LDAP,LDAPS integration AD Integration and windows based single sign on	
Network Attacks	Quick identification of network attacks and prevention DoS and DDoS attack prevention	
Web filtering	Category based web filtering Filtering for HTTP and HTTPS URLs, URLs based on regular expression Malware and phishing URL blocking	

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Application filtering	Applications control and visibility Application control database Must be able to block online games, Instant messengers, P2P Applications, proxy etc.
Gateway anti-virus and anti-spyware	Virus, Worm, Trojan detection and removal Spyware, malware, phishing protection Anti-virus scanning for SMTP, SMTPS, POP3, IMAP, HTTP, HTTPS & FTP protocol traffic Automatic anti-virus signature update Quarantine area
IPS	Integrated IPS Signature based and protocol anomaly based IPS Ability to add custom signature to IPS
Bandwidth management	Application and identity based bandwidth allocation Web category based bandwidth management Bandwidth utilization report
Web-Application Firewall	Cookie Protections Measures Session Attacks Mitigation Cryptographic URL and Parameter Protection Strict Request Flow Enforcement HTTPS (SSL) encryption offloading Banner-grabbing Protection Hidden field manipulation Protection SQL injection Protection OS command injection Protection Cross-site scripting Protection (XSS) Dangling pointer Protection Stealth commanding Protection Buffer overrun Protection URL Hardening engine Form field meta data validation Directory traversal prevention Response control Outbound data theft Protection Protocol limit checks
Monitoring	Traffic and security dash board IPS, Web filter, Application filter, Anti-virus Authentication, System and Admin events log view Syslog support
On appliance Reporting	Integrated reporting tool Real-time and historic reporting Data transfer report based on username and application Report on blocked attempts by username and ip address IPS, Internet usage, application usage, attacks, anti-virus reports Export reports to PDF, Excel, HTML format Sending reports using email
Certification	ICSA Firewall Checkmark certification
Power supplies	Dual redundant
Others	Rack mountable
Approved brands	Cyberoam/Dell Sonicwall/FortiGate
Warranty	3 Year onsite NBD

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**Layer2 managed switch**

Ethernet ports	8 x 10/100/1000 Gigabit Ethernet
Switching bandwidth	16 Gbps
Security features	Port security DHCP snooping Dynamic ARP inspection IP Source guard Ssh, SNMPv3 Port based ACL
QoS	Strict priority queuing Round robin scheduling Weighted tail drop congestion avoidance Flow based rate limiting
Others	Link aggregation control protocol Voice VLAN Remote switch port analyser RMON agent
Approved brands	CISCO/HP/Juniper
Warranty	3 year onsite NBD

**Other conditions**

- Supply and installation at IISER Thiruvananthapuram Vithura campus
- The specifications provided are the minimum required
- The router and layer2 managed switch should be from same OEM
- The vendor should have at least two certified engineers for offered router. Certificate copies must be enclosed
- The vendor should have at least two certified engineers for offered UTM. Certificate copies must be enclosed
- Vendor should have completed at least one similar installation. Customer satisfaction report must be enclosed for the installation
- The vendor is responsible for resolving issues related to configuration and warranty including lodging complaint with OEMs
- Product brochures of all items should be attached without which the offer is liable for rejection
- Vendor should fill and submit the compliance sheets as given under Appendix A, Appendix B and Appendix C
- Price bid should be provided in the format given under Appendix D

**Appendixes****Appendix A: Compliance sheet - WAN Router****OEM:****Model:**

Property	Values	Com-plied (Y/N)	Deviations/Remarks
Throughput	1Gbps upgradable to 2Gbps		
Interfaces	2x10/100/1000 RJ-45 ports 2x10/100/1000 SFP ports		
Data plane memory	2GB		
Control plane memory	4GB		
Flash memory	8GB		

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Features	IPv4, IPv6, MPLS, QoS, Syslog		
Remote management	RMON, SNMP v1,2,3		
Routing protocols	BGP, OSPF, Static IPv4 routing, Static IPv6 routing, Policy based routing, RIP, RIP-2,		
Power supplies	Dual redundant		
Others	Rack mountable		
Approved brands	CISCO/HP/Juniper		
Warranty	3 year onsite NBD		

**Appendix B: Compliance sheet - UTM Appliance****OEM:****Model:**

Property	Values	Complied (Y/N)	Deviations/Remarks
10/100/1000 RJ-45 ports	6		
10G SFP+ ports	2		
Throughput when Firewall, IPS, Web & Application Filtering and Anti-Virus features turned on	4Gbps		
New connections/sec	200000		
Maximum concurrent connections	5000000		
General UTM Features	<p>Hardened OS</p> <p>Stateful packet inspection</p> <p>Unlimited user license</p> <p>Integrated Content filter, Application control, IPS and gateway anti-virus</p> <p>Filtering based on username, ip address, ports and protocol</p> <p>Filtering on fragmented packets</p> <p>User defined multiple security zones</p> <p>Source and Destination NAT</p> <p>Advanced NAT capabilities for supporting all applications and services including H.323 and SIP</p> <p>MAC based filtering</p> <p>Multi WAN link load balancing</p> <p>IPv6 Ready</p> <p>Active-Active and Active-Passive high availability support</p> <p>On appliance reporting with 1TB HDD</p>		

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SSL VPN	Browser based access SSL VPN Client based access LDAP and AD based authentication		
VPN	IPSec, L2TP, PPTP DES, 3DES, AES MD5, SHA-1 Diffie Hellman Groups 1,2,5,14,15,16		
Management	CLI and browser based GUI Role based access control Command line interface using telnet and ssh SNMP v1,2,3		
User authentication	User identity based access control for all TCP/IP applications HTTPS based secure authentication Local database LDAP,LDAPS integration AD Integration and windows based single sign on		
Network Attacks	Quick identification of network attacks and prevention DoS and DDoS attack prevention		
Web filtering	Category based web filtering Filtering for HTTP and HTTPS URLs, URLs based on regular expression Malware and phishing URL blocking		
Application filtering	Applications control and visibility Application control database Must be able to block online games, Instant messengers, P2P Applications, proxy etc.		
Gateway anti-virus and anti-spyware	Virus, Worm, Trojan detection and removal Spyware, malware, phishing protection Anti-virus scanning for SMTP, SMTPS, POP3, IMAP, HTTP, HTTPS & FTP protocol traffic Automatic anti-virus signature update Quarantine area		
IPS	Integrated IPS Signature based and protocol anomaly based IPS Ability to add custom signature to IPS		
Bandwidth	Application and identity based		

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management	bandwidth allocation Web category based bandwidth management Bandwidth utilization report		
Web-Application Firewall	Cookie Protections Measures Session Attacks Mitigation Cryptographic URL and Parameter Protection Strict Request Flow Enforcement HTTPS (SSL) encryption offloading Banner-grabbing Protection Hidden field manipulation Protection SQL injection Protection OS command injection Protection Cross-site scripting Protection (XSS) Dangling pointer Protection Stealth commanding Protection Buffer overrun Protection URL Hardening engine Form field meta data validation Directory traversal prevention Response control Outbound data theft Protection Protocol limit checks		
Monitoring	Traffic and security dash board IPS, Web filter, Application filter, Anti-virus Authentication, System and Admin events log view Syslog support		
On appliance Reporting	Integrated reporting tool Real-time and historic reporting Data transfer report based on username and application Report on blocked attempts by username and ip address IPS, Internet usage, application usage, attacks, anti-virus reports Export reports to PDF, Excel, HTML format Sending reports using email		
Certification	ICSA Firewall Checkmark certification		
Power supplies	Dual redundant		
Others	Rack mountable		
Approved brands	Cyberoam/Dell Sonicwall/FortiGate		
Warranty	3 Year onsite NBD		

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**Appendix C: Compliance sheet – Layer 2 managed switch**

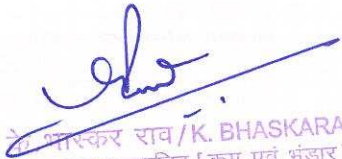
OEM:

Model:

Property	Values	Com-plied (Y/N)	Deviations/Remarks
Ethernet ports	8 x 10/100/1000 Gigabit Ethernet		
Switching bandwidth	16 Gbps		
Security features	Port security DHCP snooping Dynamic ARP inspection IP Source guard Ssh, SNMPv3 Port based ACL		
QoS	Strict priority queuing Round robin scheduling Weighted tail drop congestion avoidance Flow based rate limiting		
Others	Link aggregation control protocol Voice VLAN Remote switch port analyser RMON agent		
Approved brands	CISCO/HP/Juniper		
Warranty	3 year onsite NBD		

**Appendix D: Price Bid Format**

SINo	Item	Qty	Unit Price	Total Price	Tax %	Tax	Total
1	WAN Router	2					
2	UTM appliance	2					
3	Managed 8 port 10/100/1000 RJ-45 Layer 2 switch	2					
4	Installation Charges	-					
<b>Grand Total</b>							

  
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**V. ELECTRON BEAM WRITER. — 1 NO.**

1. IFT No. : IISER/PUR/4068/13  
 2. DUE DATE : 24<sup>th</sup> May 2016 [4 PM]  
 3. DATE OF OPENING OF TECHNICAL BID : 25<sup>th</sup> May 2016 [3 PM]  
 4. DATE OF OPENING OF PRICE BID : Will be notified later.  
 5. COST OF TENDER# : Rs. 500 + 5% VAT  
 6. EMD [BID SECURITY] \*\* : Rs. 10,00,000/-  
 7. QUANTITY REQUIRED : 1 No

A PRE BID MEETING WILL BE CONDUCTED ON 12TH MAY 2016 AT IISER-TVM AT 10.30 A.M

**ELECTRO-BEAM WRITER SPECIFICATIONS**

S. No	Feature	Tender specification
1	Source	Thermal Field emission. Specify the typical source lifetime. One spare filament or voucher for a spare source should be included in the quote.
2	Beam energy	100 eV to 25 keV or higher, Continuously variable.
3	Minimum spot size	< 3 nm at 20 kV. Specify the spot size at other beam energies, if available.
4	Beam current & stability, faraday cup	10pA to 15 nA, Stability of +/- 1% over 1 hour. Should be equipped with a Faraday cup for measuring beam current.
5	Magnification	Variable from 25X to 200,000X
6	Imaging capability	Should be capable of taking ultra-high-resolution images of nanoscale structures.
7	Beam deflection	Variable from a few micro meters to 2mm
8	Overlay accuracy	+/- 75 nano meter
9	Field stitching	+/- 75 nano meter
10	Stage	Laser interferometer controlled with a few nano meters of positional accuracy over a travel range of 50mm X 50mm in area. Should be equipped with rotation and tilt features.
11	Substrate size	50 mm X 50 mm or larger
12	Digital pattern generator	6 MHz or higher. Please also quote for higher speeds as optional.
13	Beam Blanker	Should be equipped with a fast electrostatic beam blanker with a rise time of 50 ns or shorter.
14	Detectors	Should be equipped with a secondary electron detector. Any other detectors should be quoted as options.
15	Specimen current monitor	Should be equipped with an internal or external Pico-ammeter for monitoring the specimen current.
16	Minimum feature size	<=20 nm, On HSQ or comparable electron beam resists
17	Proximity error correction	Proximity error correction should be included as an <b>option</b>
18	Substrate holders	Substrate holders for 2-inch wafers and also for samples with smaller dimensions should be provided. Ability to rotate and tilt the sample.

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		holders. Please include any other substrate holders as <b>optional</b> item
19	Specimen chamber & Vacuum Systems	Should be equipped with a CCD camera to view the chamber and the specimen. Pumping system should be oil-free. Pumps should be from reputed and standard makes with local servicing facility in India. Vendor should provide sufficient length to the pumping lines so that pumps can be kept at a distance from the lithography machine to reduce the mechanical vibration and noise. All vacuum systems should be controllable through the software user interface, automatic and with adequate safety interlocks.
20	Control system	Automatic control of the exposure with different exposure parameters. System control should be through Keyboards, mouse, Joysticks and Knobs. Should provide a computer with the latest hardware and software compatible with the equipment. A licensed version of the lithography and CAD software to install on an off-line PC should be provided. The CAD file editor should support GDSII and DXF formats. Please list any other supported file formats. Upgrades and updates for the software should be available free-of-cost for three years after installation.
21	Logging of operating conditions and multi-user platform.	The system should support creating multiple user accounts with passwords and creating user-specific machine settings and files. The system should log all the important operating conditions & parameters automatically for every user.
22	Anti-vibration table	Anti-vibration platform or table should be provided with the machine
23	UPS	Appropriately rated UPS for power back for at least 30min in case of supply power outage.
24	Tools, Spares & Manuals	Should provide all the required tools for the routine operation & maintenance of the machine, substrate mounting etc. Spares such as gaskets, O-rings, conductive adhesives for conducting lithography for at least two years. Printed version of the operation and maintenance manuals for the system and all the third party components attached to the system, such as pumps, vacuum valves, power supplies etc.
24	Installation & training	Should be installed by qualified technicians. Hands on training for not less than a week, should be provided on-site by qualified technicians. The training should include various tasks for the routine running and maintenance of the equipment.
26	On-site demonstration	The lithographic capabilities and specified feature sizes should be demonstrated on-site with user provided standard wafers. Detailed recipe for achieving the minimum feature size should be provided. The processing of the wafers such as spin coating and baking of the resists, developing the patterns after the exposure should be done on-site.
27	Other users in the country	Should provide a list of other users in the Country and their contact information.
28	Warranty & extended warranty	At least 1 Year of Warranty for the system and all the third party components such as pumps and valves attached to the system. After Warranty Period, a three-year AMC for onsite service and maintenance for the complete system should be quoted.

### Other Requirements:

Bidder should attach detailed technical broacher in support of the quoted configuration and a compliance statement <sup>indication</sup> all the specifications.

### Optional:

AMC <sup>for</sup> after 5<sup>th</sup> and 6<sup>th</sup> year should be quoted.

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**VI. GEL DOCUMENTATION SYSTEM. - 3 Nos.**

1. IFT No. : IISER/PUR/7719/16
2. DUE DATE : 24<sup>th</sup> May 2016 [4 PM]
3. DATE OF OPENING OF TECHNICAL BID : 25<sup>th</sup> May 2016 [3 PM]
4. DATE OF OPENING OF PRICE BID : Will be notified later.
5. COST OF TENDER# : Rs. 500 + 5% VAT
6. EMD [BID SECURITY] \*\* : Rs. 1,30,000/-
7. QUANTITY REQUIRED : 3 Nos

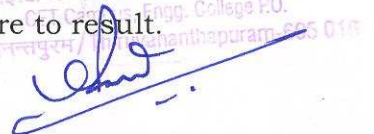
**SPECIFICATIONS FOR GEL DOCUMENTATION SYSTEM****Hardware-**

1. The system should be equipped with Chemiluminescence, UV transilluminator and emission filter for UV/fluorescent applications for both Western Blotting and electrophoresis applications
2. System should have stain-free capability for stain-free gels and blots.
3. System should be compatible with the following dyes: ethidium bromide, SYBR® Green, SYBR® Safe, SYBR® Gold, Gel Green, Gel Red, 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.
4. System should be equipped with cooled CCD (temperature -25 degree C or below) camera with image resolution of at least 4 megapixels or higher for resolving closely spaced bands on a gel or blot. The lens should have a bright aperture of at least f/1.0 or brighter.
5. It should be possible to set up automatic imaging, including focussing and zooming.
6. System should be modular with different sample trays & flexible to image a wide variety of applications, including detection of nucleic acids, proteins, etc.
7. Should be capable of quantitation of multichannel images
8. Should have lens flat-fielding calibration option
9. A suitable PC (including CPU, monitor, keyboard, mouse, minimum 2 TB hard disc space and minimum 4 GB RAM) that can operate the system, with the Gel Doc system software installed should be included in the bid. Detailed specifications of the PC should be provided.
10. A suitable UPS should be provided
11. Two spare lamps (1 UV and 1 normal) should be provided.

**Software:**

1. Should have automated workflow recorded in a protocol file from image capture to results thus eliminates need for training.
2. Should allow 100% repeatability of the workflow by any user and ensure optimized image data and analysis from a gel in a single uninterrupted, fast, and completely reproducible workflow.
3. Should have automated image capture driven by a selected gel or blot application.
4. Should have one-button acquisition from image capture to result.

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5. Should generate customizable reports.

**Warranty and AMC**

1. Three years warranty should be provided


**Optional accessories**

1. A thermal printer compatible with the system should be quoted separately and mentioned in the bid.
2. 3 years post-warranty Annual Maintenance <sup>contract</sup> Cost should be included (should be quoted separately)

**Other requirements**

1. The equipment will be first installed in transit labs. The bidder should dismantle and reinstall the whole system from the transit location to the permanent campus of IISER-TVM at Vithura with no additional cost.
2. Bidder should attach a detailed technical brochure for the quoted configuration and compliance statement for the all the tendered specifications.

The bidder should provide a list of at least 10 institutions where they have installed equipment of similar specifications.

  
- 22/4/16

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## **TERMS&CONDITIONS**

- 1) **Bid with IFT No. & Item Name shall be quoted over cover**
- 2) All the correspondence in this regard should be done in favour of Deputy Registrar (Purchase & Stores), Indian Institute of Science Education & Research Thiruvananthapuram, CET Campus, Engineering College P.O, Trivandrum - 695016.
- 3) Instructions to Bidders [Annexure I] and General Terms and Conditions of the Contract [Annexure II] shall be followed.
- 4) #Tender cost in the form of DD favouring IISERTVM shall be sent along with 'Technical bid'. **[rear side of DD should bear Tender No. and Firm name using pencil]**
- 5) \*\*Bid Security [refundable without any interest] shall be as per clause 1.15 of Annexure I and shall also be sent along with Technical bid. In case the Bid security is provided by Bank Guarantee, specimen for the same is at Annexure IV.
- 6) Integrity Pact [Annexure III] shall be completed, signed, sealed and sent along with Technical Bid only for the Tender at Sl.No.1 of the INDEX.
- 7) **Clause 1.10[Bid Form] of Annexure I is not applicable for this Tender.**
- 8) **Tenders without Tender Cost, Integrity Pact [for Sl. No. III and V of Index only] and Bid Security shall not be considered and summarily to be disqualified from participating tender.**
- 9) **Tender Opening:**  
All tenders will be opened at Pratheeksha Building. Authorized representatives of the bidders may attend the Tender Opening only **with authorization letters.**

### **TWO - PART TENDER**

#### **PART I - TECHNICAL BID:**

Consisting of all Technical details along with commercial terms and conditions. DD towards Tender Cost and Bid Security [EMD] signed shall be sent along with Technical bids, Clientele list and details of TWO major installations in India.

#### **PART II - PRICE BID:**

Showing item-wise prices for the items mentioned in the Technical Bid.

***The technical bid and the Price bid should be in separate sealed and super scribed covers. Both these covers are to be put in a sealed bigger cover super scribing Tender No and due date.*** Technical bids will be opened first and after evaluation, price bids of only the shortlisted bidders will be opened.

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**DEPUTY REGISTRAR**  
**[PURCHASE & STORES]**  
**IISERTVM**

22/4/16