



COMSATS University Islamabad, Lahore Campus
Defence Road, Off Raiwind Road, Lahore

Tender No. CUI-LHR-TN-13-19-1319

Case # 2939

Single Stage Two Envelop Procedure

Title of Tender: **Lab Equipment for Establishment of Centre for Advanced Technologies in Biomedical Materials (Knowledge Economy Initiative)**

TERMS AND CONDITIONS

1. All pages of bidding documents are mandatory to be signed / stamped, meaning thereby bidder agrees to our terms & conditions mentioned herein, failing which the bid may be rejected.
2. Any addition, deletion or modification of any clause of the procurement terms & conditions/ BoQs of CUI Lahore Campus by any vendor will not be acceptable and may lead to rejection of the bid.
3. Only registered Suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to participate in tender.
4. The contract will be executed and handed over in satisfactory conditions up to the entire satisfaction of COMSATS University Islamabad, Lahore Campus.
5. Documents along with Pay Order / Demand Draft amounting to **Rs. 1,000/-** as a tender document fee (Non-Refundable) shall be submitted in favor of COMSATS University Islamabad, Lahore Campus to the address given below. No bid will be accepted without tender documents' fee.
6. Part / Advance payments is not allowed.
7. **The exact completion/installation/ delivery time from the date of the purchase / work order will be 120 days. The handing over / completion time for this contract is of critical importance.**
8. Your bid proposal should be inclusive of freight and all other taxes and to be delivered at COMSATS University Islamabad (CUI), Lahore Campus's premises.
9. After opening of bids, CUI-Lahore Campus will examine the bids for completeness as per tender document.
10. Purchase order (s) will be awarded to the lowest or technically recommended bidder (s) on the basis of item wise / subtotal wise / grand total wise according to the nature of BoQs.
11. The bid should be submitted in a sealed envelope up to **January 13, 2020** on or before **1400hrs** and will be opened on the same date **at 1430hrs** in the presence of available bidders.
12. COMSATS University Islamabad, Lahore Campus, will follow the PPRA rule of **single stage two envelope procedure;**
 - i. The bid shall comprise a single package containing **two separate envelopes**. Each envelope shall contain separately the **financial proposal** and the **technical proposal;**
 - ii. The envelopes shall be marked as **“FINANCIAL PROPOSAL”** and **“TECHNICAL PROPOSAL”** in bold and legible letters to avoid confusion;

Signature & Stamp of Bidder

- iii. Initially, only the envelope marked **“TECHNICAL PROPOSAL”** shall be opened;
 - iv. The envelope marked as **“FINANCIAL PROPOSAL”** shall be retained in the custody of the procuring agency without being opened;
 - v. The procuring agency shall evaluate the technical proposal in a manner prescribed in advance, without reference to the price and reject any proposal which does not conform to the specified requirements;
 - vi. During the technical evaluation no **amendments** in the technical proposal shall be permitted;
 - vii. The financial proposals of bids shall be opened publicly at a time, date and venue announced and communicated to the bidders in advance;
 - viii. After the evaluation and approval of the technical proposal the procuring agency, shall at a time within the bid validity period, publicly open the financial proposals of the technically accepted bids only. The financial proposal of bids found technically nonresponsive shall be returned un-opened to the respective bidders;
 - ix. and
 - x. The bid found to be the lowest evaluated bid shall be accepted.
13. The envelope should be marked as under;
- Secretary, Purchase Committee**
COMSATS University Islamabad, Lahore Campus
 Defence Road, Off Raiwind Road, Lahore.
 Tel: 042-111-001-007, Ext: 875
14. The envelope shall also bear the word **“CONFIDENTIAL”** and following identification quotation of **“Lab Equipment for Establishment of Centre for Advanced Technologies in Biomedical Materials (Knowledge Economy Initiative)”**.
15. The bid form (BoQs) must be duly filled in, stamped and signed by the authorized representative of the bidder.
- 16. If the vendor fails to deliver the goods / services to COMSATS University Islamabad (CUI), Lahore Campus within the given deadline, any of the following can be opted by CUI Lahore campus on the recommendation of the end user and approval of the authority;**
- a. An extension in the delivery period may be granted in case a valid reason/justification with necessary documentary evidence is provided by the vendor supporting the reason for delay.
 - b. A penalty upto 10% of the invoice value may be charged.
 - c. Purchase order may be cancelled along with confiscation of earnest money if the vendor fails to deliver the goods / services after the initial or extended delivery time, as the case may be.
17. If the delivered goods / services are not according to the required quality standards / specifications, the same shall be liable to be rejected after inspection. The vendor would be required to supply as per requirements mentioned in our BoQs, otherwise the purchase / work order will be cancelled after due date with confiscation of earnest money.
18. Deduction of Income Tax and any other tax will be deducted at source according to Government prevailing rules.

19. Payment will be made on submission of Invoice in the name of “COMSATS University Islamabad (CUI), Lahore Campus” with a copy of delivery challan (s) after the complete order has been supplied, inspected and accepted which includes delivery / installation, and COMSATS acceptance / inspection thereof.
20. All prices should be valid for at least **120 days**. Withdrawal or any modification of the original offer within the validity period shall entitle CUI-Lahore Campus to forfeit the earnest money in favor of the CUI-Lahore Campus and / or put a ban on such vendor participation in tenders / works.
21. It is the sole responsibility of the agent / supplier / manufacturer to comply with the applicable laws, be national or international.
22. In case of any dispute or grievance, the matter shall be addressed as per PPRA rules.
23. The CUI-Lahore Campus reserves the right to modify the quantities of goods / services at any time before the award of purchase / work order.
24. Minimum one-year warranty shall be provided from the date of installation or standard warranty whichever is higher
25. **05% of the total value of the Invoice will be retained as security by COMSATS University Islamabad (CUI), Lahore Campus, and will be released after warranty period i.e. As Mentioned in BoQs which will be counted from the date of Installation / Completion of work / Supply.**
26. **The bidder is required to furnish in form of Bank deposit/ CDR / Pay order equivalent to 2% of the total Bid price as Earnest Money crossed in favor of “COMSATS University Islamabad, Lahore Campus”.**
27. **CUI Lahore Campus** reserves the rights to reject the bid if;
 - i. Received without earnest money
 - ii. Received later than the date and time fixed for tender submission
 - iii. The tender is unsigned/ unstamped
 - iv. The offer is ambiguous
 - v. The offer is conditional
 - vi. The offer is from a firm, which is black listed by any Govt. Office.
 - vii. The offer is received by telephone/telex/fax/telegram.
 - viii. Any unsigned / ambiguous erasing, cutting / overwriting etc. is made.
28. The bidder should furnish a certificate as worded below in token of acceptance of all the terms and conditions of the tender otherwise the tender will not be considered under any circumstances.
29. The undersigned affirm that the terms and conditions as contained in this document have been read and accepted and that in the event of selection of my/our rate the agreement in the prescribed form will be entered into:
 - **Company / Vendor Name:.....**
 - **Postal Address:.....**
 - **Tel. / Mobile:.....Email:.....**
 - **NTN#:.....GST#:.....**
 - **Signature:**
 - **Please also attach the Certificate supporting being Active Taxpayer as per requirement of FBR.**

BoQs of Lab Equipment for Establishment of Centre for Advanced Technologies in Biomedical Materials (Knowledge Economy Initiative)

Technical Portion (Please mention the quoted model/ brand in technical portion with no mention of price otherwise the bid will be rejected)

No change in the BoQs (Specs & Qty.) of CUI-Lahore Campus, as detailed below, is allowed. Any additional information may be mentioned in the blank columns (i.e. model / brand or Price). Any modification in CUI-Lahore Campus BoQ may lead to rejection of bid (fully or partially).				Please mention the quoted Model / Brand with meeting the all specifications mentioned in BoQs
Sr. #	Item Name	Required Specifications	Qty	
1	Heating plates with thermo couples	General features	Fast heating	11 Nos.
			Precise speed and temperature control	
			Digital display for constantly showing set temperature and stirring speed	
			Automatic, equipped with power restore function after power failure	
			Hot top warning indicator	
			Thin ceramic coating for excellent corrosion resistance and a white surface for optimal sample viewing	
			Suitable for using metal vessels	
			Thermocouple compatible	
		Stirring Speed range	80 to 1500 rpm or better	
		Heating range	40 - 550 °C or better	
		Stirring Capacity (H ₂ O) range	15-20L or better	
		Top Plate Material	Ceramic material	
		Top Plate Dimensions Range	(180 x 180 mm) to (254 x 254 mm) or better	
Power supply	230V/ 50-60Hz			
Temperature probe	External / Direct Contact Temp. Probe	2 Nos.		
Warranty	12 Months from the date of installation			

Signature & Stamp of Bidder

2	Heating plates with thermo couples	Advance Multipoint Stirrers with Heating	Uniform heat distribution	3 Nos.	
			Excellent resistance to chemicals		
			Heating up to high temperature		
			Precise heating and stirring control		
			Each heating & stirring point, independently controlled.		
			Equipped with power restore function after power failure		
			Thermocouple compatible		
		Stirring points	4 or better		
		Stirring Speed range	Up to 1500 rpm for each stirring position or better		
		Stirring volume (H ₂ O):	Up to 15 liters (x4)		
Temperature regulation	From 60 to 350 °C or better				
Temperature probe	External / Direct Contact Temp. Probe	2			
Warranty	12 Months from the date of installation				
3	Surgical light for OT	Purpose	Surgical light source to illuminate the Operating area. Facilitation in surgical procedures for animal trials. Compact exam light for surgical procedures on experimental animals.	2 Nos.	
		Light source	Equipped with powerful LED technology.		
		Installation type	Floor standing Six-dimensional joint; 360®,		
		Luminance	Multiple luminescence		
			Temperature 4300±500K		
			Illumination depth: ≥600(mm) ≥2°C,		
			Higher than 100000 Lux.Color		
			Spot Diameter:150 to 300(mm)		
		Lamp automatic switching time: 0.2S, Color indication index: ≥97%.			
Light-adjusting mode	Eight grade dimmer system				
Power Supply	~220v 50 Hz, 180VA, Input Power 180VA Bulb Power:100VA.				

		Lamp automatic switching time	0.2S, Color indication index: $\geq 97\%$,		
		Movement options	Six-dimensional joint; 360°,		
		Warranty	12 Months from the date of installation		
4	Operating Table	Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel 304. Locally manufactured	2 Nos.	
		Tabletop dimensions	Equal to 60 x 23.6 in (152 x 60 cm) or higher.		
		Adjustable Height	Table height electronically adjustable ranging 28 to 40 in, Includes rails. Adjustment 28.3 - 40.2 in (72 - 102 cm),		
		Heated Top	Durable stainless steel tabletop with electronic heating system or Heated Pad provided.		
		Drain hole	Built-in drain hole at the table top		
		Load capacity	Higher than (120-200 kg),		
		Warranty	12 Months from the date of installation		
5	Trolley with in built rabbit cages	Rabbit Cages	Cages size: 600mm x 450mm x 450 mm (LXBXH)	102 Nos.	
			Made of S.S 304 material with duly spot welded and finished joints		
			AISI 304 quality stainless steel material		
			Fitted with tag holder		
			Gap between S.S rods is around 7mm Design to ensure perfect fit and locking throughout the complete cage body		
			Cage door has a fixed label holder and arrangement for food hopper and fixing water bottle. The door must be made of wire mesh of 2.5mm and 5mm SS rod welded on a frame of 5mm SS rod and covered with 22 swg Sheet.		

			<p>Floor grill Bottom floor net of 12 x 26 mm must be made of 2.5mm and 5mm SS wire welded on a frame of 5mm SS rod. Floor net must be fixed and non-removable type.</p> <p>Tray Excreta tray made of 22swg S.S sheet with turned and smoothed edges, and removable for cleaning.</p>			
		Bottles	Polypropylene water bottle of capacity 650ml fitted S.S bent type nozzle	120 Bottles		
		Trolley	Trolley must be made up of 20mm x 20mm x 16swg S.S	34 trolleys		
6	Trolley for rat cages	Cage Body	Size: 410x282x153mm (LXBXH)	200 Nos.		
			Thickness: 4mm±0.5mm			
			Autoclavable			
			Made of food grade quality material such as polypropylene material			
		Top Grill	Stainless steel material, AISI 304 quality Fitted with tag holder			
			Provision for feed pallets and fixing water bottle			
			Main frame is made of 4mm S.S 304 rod and rest of grill of 2mm S.S 304 rod			
			Gap between S.S rods is around 7mm			
			Design to ensure perfect fit and locking throughout the complete cage body			
			Grill are designed such as to be easily fit in second grill			
			Made of S.S 304 material with finished joints and duly spot welded			
			Portion for food and water bottle compartment are compulsory.			
		Bottles	Autoclavable			200 Nos.
			Made of transparent polycarbonate (PC)			
Wide mouth to aid filling and emptying, and for washing						
Each bottle volume should 250 ml						

		Racks	Suitable for holding polypropylene cages of size 410x282x153mm	8 Racks	
7	Cages for rodents	Cage Body	290x220x140mm (LXBXH)	200 Nos.	
			Thickness: 4mm±0.5mm		
			Autoclavable		
			Grade quality polypropylene material		
		Top Grill	Made of S.S 304 material with finished joints and duly spot welded		
			Fitted with tag holder		
			Provision for feed pallets and fixing water bottle		
			Design to ensure perfect fit and locking throughout the complete cage body		
			Main frame is made of 4mm S.S 304 rod and rest of grill of 2mm S.S 304 rod		
			Gap between S.S rods is around 7mm		
Water delivery Bottles	Made of transparent polycarbonate (PC)	200 Nos.			
	Wide mouth to aid filling and emptying, and for washing				
	Each bottle volume should 250 ml				
		Racks	Suitable for holding polypropylene cages of size 290x220x140mm (LXBXH)	8 Racks	
8	Contact Angle measurement	Purpose of the Contact Angle measurement	Drop shape analyzer for contact angle measurement, surface and interfacial tension measurements, and surface free energy calculation	01	
		Measuring angle	0-180°		
		Resolution	0.01° Or better		
		Measuring range of interface tension	0.01 to 2000 mN/m or better		
		Camera	Maximum resolution 1984 pixel or high		
			UV-IR cut filters		
			measuring speed 2000 fps or better		
USB 3.0 port					
			Camera protector		

		Optics	Field of view 3.2 to 18.5 mm or better	
			resolution 2.1 μm to 13.3 μm or better,	
			zoom 6x or better,	
			Camera view angle \pm2.5 or better$^{\circ}$	
			Illumination Adjustable Monochromatic LED	
		Illumination	Manual Moveable	
		Stage	X, Y, Z axis movement	
			0-90$^{\circ}$ tilting for roll-off angle measurement with resolution 0.01$^{\circ}$ or better	
		Dosing system	Software control Automatic, with glass and disposable syringes	1
			Accuracy 0.1μL or better	
			dosing speed 10-1000μL/minute or better	
			drop transferring Automatic	
			Glass Syringes 400 to 10000 μL	2
			Disposable syringe 300-1000 uL	100 piece
			SS needle	2
		Software	PTFE coated SS needle kit 300-1000 ul	2
			Software to determine static and dynamic contact angle measurement, surface free energy of solids from contact angle data, and software to determine surface and interfacial tension of liquids	
			Software to control camera, illumination, temperature, dosing module, table movement	
		Computer	Compatible with system with power back up	01
		Power backup with additional Servo Stabilizer	online pure sine wave UPS	01
built in AVR capable of regulating \pm 30 volts				
Power factor \geq 0.95				
Power backup in case of power failure for at least 30 mins				
OR A better alternative as recommended and provided by OEM for optimum operations				
warranty	12 Months from the date of installation with vendor having			

			good local reputation with running machines and well-trained engineers		
9	NanoDrop	Purpose of the NanoDrop Machine	NanoDrop is a micro-volume machine/spectrophotometer, used to quantify and assess purity of RNA, DNA and Protein.	01	
		Applications	RNA, DNA and Protein quantification and quality assessment		
		Measurement Time	1-3 second or better		
		Metric Volume	0.5 to 2.0µL		
		Wavelength Range	190-800nm		
		Concentration and Detection Range	3-14,000ng/µL (DNA) , 0.12 - 400mg/mL (BSA)		
		Power backup with additional Servo Stabilizer	online pure sine wave UPS	01	
			built in AVR capable of regulating ± 30 volts		
			Power factor ≥ 0.95		
Power backup in case of power failure for at least 30 mins					
Including lead Acid free batteries					
OR A better alternative as recommended and provided by OEM for optimum operations					
computer	Compatible with system with power backup	01			
Warranty	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers				
10	Precision Cutting Machine	Purpose	The unit is capable of precision cutting of samples with 3D automated moment controllable with programming PLC. The machine is equipped with replaceable wearing plates including all the necessary clamping devices, cutting liquid and as well as mounting press to ease the holding of delicate samples. All necessary	01	

			documentation along with power backup.			
		General features	Variable speed 100 - 5000 rpm			
			working wheel diameter (replaceable): 150 or more			
			Cutting diameter= 75 mm or more			
			Fully automatic XYZ axis X = 60 mm or more Y = 210 mm or more Z = 45 mm or more X axis resolution = 0.016 or better			
			Table feed rate adjustable 10 – 1000 µm/sec or more			
			Fully programable with LED based GUI interface			
			Thin section grinding feature			
			Laser based positioning			
			Accessories	Sample vise universal	5	
		Vise for long and round samples		2		
		Vise for Biomedical Samples		3		
		Vise for Longitudinal section i.e. screws & fasteners and tubes etc.		2		
		Angular cutting attachment		2		
		flange set 50 mm dia. and tray for extra filter paper and collection of cut specimens		2		
		Diamond Cut-Off Wheels: Dia 125 x thickness 0.38mm		20		
		Diamond Cut-off wheels: Dia 150 x thickness 0.40 mm		20		
		Abrasive Cut-off wheels 0.25 mm x 200 mm		50		
		Blade dressing unit during grinding		1		
		Dressing medium		10		
		Mounting medium (phenolic resin)		15kg		
		Oil for precision cutting		20 litre		
		digital display with PLC for automated cutting				
		Intelligent feed control				
		cup wheels and Corrozip				
		Power rating 220v AC				
		Sample mounting press	Automated Hydraulic press with digital control for heating time, molding temperature, ramp control and start & stop cycle programming	01		
			Temperature 200 °C or more			

			Pressure 300 bar or above		
			Mold size from 25-50mm or more		
			Recirculating cooling system	01	
		Power backup with additional Servo Stabilizer	online pure sinewave UPS	01	
			built in AVR capable of regulating ± 30 volts		
			Power factor ≥ 0.95		
			Power backup in case of power failure for at least 30 mins		
			Including lead Acid free batteries		
			OR A better alternative as recommended and provided by OEM for optimum operations		
		others	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers		
11	Cryostat	Temperature setting range	-60°C to 0°C or better	1 No.	
		Specimen size:	30 x 55 mm or better		
		Cutting Speed	0.1-250mm/s or better Vmax: 210 mm/s		
		Section thickness setting	0.5 to 600 μm		
		Horizontal specimen feed	15-30 mm or better		
		Vertical specimen stroke	45-60 mm or better		
		others Specimen retraction	40-90 μm or better		
		Specimen precision orientation	0- 10° (x/y/z axis)		
		Freezing shelf temperature	Approx. -35°C to -60°C		
		Power draw	800-2000 VA		
				Power backup with additional Servo Stabilizer	online pure sinewave UPS built in AVR capable of regulating ± 30 volts Power factor ≥ 0.95 Power backup in case of power failure for at least 30 mins Including lead Acid free batteries OR

			A better alternative as recommended and provided by OEM for optimum operations		
		installation	Complete installation with onsite training		
		warranty	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers		
12	Dilatometer	purpose	Used to determine change in physical or volume dimension of sample as a function of controlled temperature	01	
		Type	Horizontal, Push Rod, Dual sample		
		Sample Dimensions	Range: Length & Diameter Minimum 8mm to above,		
		Furnace Temperature	Range: -150°C or lower (Min) +700°C or higher (Max)		
		Furnace Atmosphere	Software Controllable for vacuum, inert gas and air		
		Contact Force	20mN or better (Min) 1N or better (Max)		
		ΔL Resolution	10nm or better		
		Temperature Resolution	0.05K or better		
		Measuring Range	$\pm 2500 \mu\text{m}$ or better		
		Gas Supply Module	Nitrogen gas cylinder with double regulator and certified (pressure rated and tested)	01	
			Air gas cylinder with double regulator and certified (pressure rated and tested)	01	
			2 stage moisture trappers for gas cylinders	02	
		Cooling accessory	<ul style="list-style-type: none"> To attain minimum temperature as require by supplied furnace type(-150°C or better) System based on Liquid nitrogen with minimum capacity 25L along with safe valve and draw device 	01	
Vacuum Unit	Oil based vacuum system, to reach vacuum of 10^{-2} mbar or better	01			

		Power backup with additional Servo Stabilizer	online pure sinewave UPS	01	
			built in AVR capable of regulating ± 30 volts		
			Power factor ≥ 0.95		
			Power backup in case of power failure for at least 30 mins		
			Lead acid free dry battery (1 year warranty)		
OR A better alternative as recommended and provided by OEM for optimum operations					
		Software	<ul style="list-style-type: none"> Must be able to run system with all the accessories and to obtain all required results 		
		Accessories	<ul style="list-style-type: none"> Set of standard samples for calibration measurements with purity certificate. Automatic sample Evacuation system, Vacuum Unit, Multimode cooling and heating system Different Set of sample preparation/testing kit (Organic, in-organic, Polymer, Composite) 	01 each	
			Desktop PC required. Of specifications recommended by Original Equipment Manufacturer. With original windows.	01	
		Installation and warranty	<ul style="list-style-type: none"> Onsite Installation & Commissioning with Training 12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers 		
13	Low-Flow Anesthesia System	Purpose	Anesthesia system for ethical precise delivery of anesthetic to prepare small animals for surgical procedures. Safe for surgical personnel.	2 Nos.	
		Range	90% below OSHA Isoflurane limit. Less than 1mL of isoflurane an hour with typical use. Flow rates from 25 ml to 1 L,		
		Number of animals	Anesthetize multiple animals at once.		
		Calibration	No servicing or calibration needed.		

		Gas supply	Use room air or compressed oxygen.		
		Monitoring	Built-in display for real-time monitoring.		
		Induction Chamber	Include the Microflex Breathing Device and Mouse/Rat induction chamber.		
		Accessories	All the required hardware and connections included in the system		
		Warranty	12 Months from the date of installation		
14	Anesthesia Mask/ Breathing Circuit	Purpose	Rodent face masks made from clear acrylic to anesthetise or resuscitate the rodents.	4 Nos.	
		Size	Large anesthesia mask with co-axial non-rebreathing system, 44mm diameter, 38mm deep,		
		Diaphragm	Includes extra diaphragm material (200 to 350g).		

Bid Evaluation Criteria

All bids shall be evaluated in accordance with the following evaluation criteria and other terms & conditions set forth in this bidding document.

- a. The bids shall be evaluated to strictly ensure that the quoted brand/ model meet all the BoQ/ specification requirements given in the tender document for each item.**
- b. In addition to the BoQ requirements, vendors must meet the vendor qualification criteria /company profile requirements (if any), as set forth in this tender document.**
- c. Supporting literature of the quoted model must be attached for verification & technical evaluation of the required specification by the technical committee. In case of any clash is found between the quoted model and the supported literature may lead to rejection of bid.**
- d. The vendor must have an authorized dealer certificate against Sr. # 1, 2, 8, 9, 10, 11 & 12 of the quoted product/Item (Certificate with current year's validity) of Original Manufacturer for all Equipment which shall be also verifiable from the Principal / Manufacture Website or through email. It must be attached with bid otherwise such item/bid may be rejected.**

Financial Portion (Price and Brand/Model to be mention only in Financial Proposal in a separate sealed envelope) Strictly on our BoQs Form.

Vendors are required to provide both unit and total price of each item and calculations must be made carefully to avoid mistakes. However, in case, total price does not match with the unit price and quantity due to calculation error or typo error, any of the following can be opted

1. The bid may be rejected on the reason of ambiguity (OR)
2. Unit price will be considered as final and total price of the respective item will be calculated by multiplying it with the quantity required. Sub-totals and grand total will also be corrected accordingly.

No change in the BoQs (Specs & Qty.) of CUI-Lahore Campus, as detailed below, is allowed. Any additional information may be mentioned in the blank columns (i.e. model / brand or Price). Any modification in CUI-Lahore Campus BoQ may lead to rejection of bid (fully or partially).

Prices should be quoted inclusive of all applicable taxes

Sr.#	Item Name	Required Specifications		Qty	Quoted Model / Brand / Make	Unit Price (Rs)	Total Price (Rs)
1	Heating plates with thermo couples	General features	Fast heating	11 Nos.			
			Precise speed and temperature control				
			Digital display for constantly showing set temperature and stirring speed				
			Automatic, equipped with power restore function after power failure				
			Hot top warning indicator				
			Thin ceramic coating for excellent corrosion resistance and a white surface for optimal sample viewing				
			Suitable for using metal vessels				
			Thermocouple compatible				
		Stirring Speed range	80 to 1500 rpm or better				
		Heating range	40 - 550 °C or better				
		Stirring Capacity (H ₂ O) range	15-20L or better				
		Top Plate Material	Ceramic material				
		Top Plate Dimensions Range	(180 x 180 mm) to (254 x 254 mm) or better				
		Power supply	230V/ 50-60Hz				
Temperature probe	External / Direct Contact Temp. Probe	2 Nos.					

		Warranty	12 Months from the date of installation				
2	Heating plates with thermocouples	Advance Multipoint Stirrers with Heating	Uniform heat distribution	3 Nos.			
			Excellent resistance to chemicals				
			Heating up to high temperature				
			Precise heating and stirring control				
			Each heating & stirring point, independently controlled.				
			Equipped with power restore function after power failure				
			Thermocouple compatible				
		Stirring points	4 or better				
		Stirring Speed range	Up to 1500 rpm for each stirring position or better				
		Stirring volume (H₂O):	Up to 15 liters (x4)				
Temperature regulation	From 60 to 350 °C or better						
Temperature probe	External / Direct Contact Temp. Probe	2					
Warranty	12 Months from the date of installation						
3	Surgical light for OT	Purpose	Surgical light source to illuminate the Operating area. Facilitation in surgical procedures for animal trials. Compact exam light for surgical procedures on experimental animals.	2 Nos.			
		Light source	Equipped with powerful LED technology.				
		Installation type	Floor standing Six-dimensional joint; 360°,				
		Luminance	Multiple luminescence				
			Temperature 4300±500K				
			Illumination depth: ≥600(mm) ≥2°C,				
Higher than 100000 Lux.Color							
	Spot Diameter:150 to 300(mm)						

			Lamp automatic switching time: 0.2S, Color indication index: ≥97%.				
		Light-adjusting mode	Eight grade dimmer system				
		Power Supply	~220v 50 Hz, 180VA, Input Power 180VA Bulb Power:100VA.				
		Lamp automatic switching time	0.2S, Color indication index: ≥97%,				
		Movement options	Six-dimensional joint; 360°,				
		Warranty	12 Months from the date of installation				
4	Operating Table	Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel 304. Locally manufactured	2 Nos.			
		Tabletop dimensions	Equal to 60 x 23.6 in (152 x 60 cm) or higher.				
		Adjustable Height	Table height electronically adjustable ranging 28 to 40 in, Includes rails. Adjustment 28.3 - 40.2 in (72 - 102 cm),				
		Heated Top	Durable stainless steel tabletop with electronic heating system or Heated Pad provided.				
		Drain hole	Built-in drain hole at the table top				
		Load capacity	Higher than (120-200 kg),				
		Warranty	12 Months from the date of installation				
5	Trolley with in built rabbit cages	Rabbit Cages	Cages size: 600mm x 450mm x 450 mm (LXBXH) Made of S.S 304 material with duly spot welded and finished joints AISI 304 quality stainless steel material Fitted with tag holder Gap between S.S rods is around 7mm Design to ensure perfect fit and locking throughout the complete cage body	102 Nos.			

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			<p>Cage door has a fixed label holder and arrangement for food hopper and fixing water bottle.</p> <p>The door must be made of wire mesh of 2.5mm and 5mm SS rod welded on a frame of 5mm SS rod and covered with 22 swg Sheet.</p> <p>Floor grill Bottom floor net of 12 x 26 mm must be made of 2.5mm and 5mm SS wire welded on a frame of 5mm SS rod. Floor net must be fixed and non-removable type.</p> <p>Tray Excreta tray made of 22swg S.S sheet with turned and smoothed edges, and removable for cleaning.</p>				
		Bottles	Polypropylene water bottle of capacity 650ml fitted S.S bent type nozzle	120 Bottles			
		Trolley	Trolley must be made up of 20mm x 20mm x 16swg S.S	34 trolleys			
6	Trolley for rat cages	Cage Body	Size: 410x282x153mm (LXBXH)	200 Nos.			
			Thickness: 4mm±0.5mm				
			Autoclavable				
			Made of food grade quality material such as polypropylene material				
		Top Grill	Stainless steel material, AISI 304 quality Fitted with tag holder				
			Provision for feed pallets and fixing water bottle				
			Main frame is made of 4mm S.S 304 rod and rest of grill of 2mm S.S 304 rod				
			Gap between S.S rods is around 7mm				
			Design to ensure perfect fit and locking throughout the complete cage body				

			Grill are designed such as to be easily fit in second grill						
			Made of S.S 304 material with finished joints and duly spot welded						
			Portion for food and water bottle compartment are compulsory.						
		Bottles	Autoclavable	200 Nos.					
			Made of transparent polycarbonate (PC)						
			Wide mouth to aid filling and emptying, and for washing						
			Each bottle volume should 250 ml						
		Racks	Suitable for holding polypropylene cages of size 410x282x153mm	8 Racks					
7	Cages for rodents	Cage Body	290x220x140mm (LXBXH)	200 Nos.					
			Thickness: 4mm±0.5mm						
			Autoclavable						
			Grade quality polypropylene material						
		Top Grill	Made of S.S 304 material with finished joints and duly spot welded						
			Fitted with tag holder						
			Provision for feed pallets and fixing water bottle						
			Design to ensure perfect fit and locking throughout the complete cage body						
			Main frame is made of 4mm S.S 304 rod and rest of grill of 2mm S.S 304 rod						
			Gap between S.S rods is around 7mm						
		Water delivery Bottles	Grill are designed such as to be easily fit in second grill		200 Nos.				
			Made of transparent polycarbonate (PC)						
			Wide mouth to aid filling and emptying, and for washing						
		Racks	Each bottle volume should 250 ml		8 Racks				
Suitable for holding polypropylene cages of size 290x220x140mm (LXBXH)									

8	Contact Angle measurement	Purpose of the Contact Angle measurement	Drop shape analyzer for contact angle measurement, surface and interfacial tension measurements, and surface free energy calculation	01			
		Measuring angle	0-180°				
		Resolution	0.01° Or better				
		Measuring range of interface tension	0.01 to 2000 mN/m or better				
		Camera	Maximum resolution 1984 pixel or high				
			UV-IR cut filters				
			measuring speed 2000 fps or better				
			USB 3.0 port				
			Camera protector				
		Optics	Field of view 3.2 to18.5 mm or better				
			resolution 2.1 μm to 13.3 μm or better,				
			zoom 6x or better,				
			Camera view angle ±2.5 or better°				
			Illumination Adjustable Monochromatic LED				
		Illumination	Manual Moveable				
		Stage	X, Y, Z axis movement				
			0-90° tilting for roll-off angle measurement with resolution 0.01° or better				
		Dosing system	Software control Automatic, with glass and disposable syringes	1			
			Accuracy 0.1μL or better				
			dosing speed 10-1000μL/minute or better				
drop transferring Automatic							
Glass Syringes 400 to 10000 μL	2						
Disposable syringe 300-1000 uL	100 piece						
SS needle	2						
PTFE coated SS needle kit 300-1000 ul	2						

		Softwares	Software to determine static and dynamic contact angle measurement, surface free energy of solids from contact angle data, and software to determine surface and interfacial tension of liquids				
			Software to control camera, illumination, temperature, dosing module, table movement				
		Computer	Compatible with system with power back up	01			
		Power backup with additional Servo Stabilizer	online pure sinewave UPS	01			
			built in AVR capable of regulating ± 30 volts				
			Power factor ≥ 0.95				
			Power backup in case of power failure for at least 30 mins				
			Including lead Acid free batteries				
			OR A better alternative as recommended and provided by OEM for optimum operations				
		warranty	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers				
9	NanoDrop	Purpose of the NanoDrop Machine	NanoDrop is a micro-volume machine/spectrophotometer, used to quantify and assess purity of RNA, DNA and Protein.	01			
		Applications	RNA, DNA and Protein quantification and quality assessment				
		Measurement Time	1-3 second or better				
		Metric Volume	0.5 to 2.0 μ L				
		Wavelength Range	190-800nm				

		Concentration and Detection Range	3-14,000ng/μL (DNA) , 0.12 - 400mg/mL (BSA)				
		Power backup with additional Servo Stabilizer	online pure sinewave UPS built in AVR capable of regulating ± 30 volts Power factor ≥ 0.95	01			
			Power backup in case of power failure for at least 30 mins				
			Including lead Acid free batteries OR A better alternative as recommended and provided by OEM for optimum operations				
		computer	Compatible with system with power backup	01			
		Warranty	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers				
10	Precision Cutting Machine	purpose	The unit is capable of precision cutting of samples with 3D automated moment controllable with programming PLC. The machine is equipped with replaceable wearing plates including all the necessary clamping devices, cutting liquid and as well as mounting press to ease the holding of delicate samples. All necessary documentation along with power backup.	01			
		General features	Variable speed 100 - 5000 rpm working wheel diameter (replaceable): 150 or more Cutting diameter= 75 mm or more Fully automatic XYZ axis X = 60 mm or more Y = 210 mm or more Z = 45 mm or more X axis resolution = 0.016 or better				

			Table feed rate adjustable 10 – 1000 μm/sec or more			
			Fully programable with LED based GUI interface			
			Thin section grinding feature			
			Laser based positioning			
		Accessories	Sample vise universal	5		
			Vise for long and round samples	2		
			Vise for Biomedical Samples	3		
			Vise for Longitudinal section i.e. screws & fasteners and tubes etc.	2		
			Angular cutting attachment	2		
			flange set 50 mm dia. and tray for extra filter paper and collection of cut specimens	2		
			Diamond Cut-Off Wheels: Dia 125 x thickness 0.38mm	20		
			Diamond Cut-off wheels: Dia 150 x thickness 0.40 mm	20		
			Abrasive Cut-off wheels 0.25 mm x 200 mm	50		
			Blade dressing unit during grinding	1		
			Dressing medium	10		
			Mounting medium (phenolic resin)	15kg		
			Oil for precision cutting	20 liter		
			digital display with PLC for automated cutting			
			Intelligent feed control cup wheels and Corrozip			
			Power rating 220v AC			
		Sample mounting press	Automated Hydraulic press with digital control for heating time, molding temperature, ramp control and start & stop cycle programming	01		
			Temperature 200 °C or more			
			Pressure 300 bar or above			
			Mold size from 25-50mm or more			
		Recirculating cooling system	01			
			online pure sinewave UPS	01		

		Power backup with additional Servo Stabilizer	<p>built in AVR capable of regulating ± 30 volts</p> <p>Power factor ≥ 0.95</p> <p>Power backup in case of power failure for at least 30 mins</p> <p>Including lead Acid free batteries</p> <p>OR</p> <p>A better alternative as recommended and provided by OEM for optimum operations</p>				
		others	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers				
11	Cryostat	Temperature setting range	-60°C to 0°C or better	1 No.			
		Specimen size:	30 x 55 mm or better				
		Cutting Speed	0.1-250mm/s or better Vmax: 210 mm/s				
		Section thickness setting	0.5 to 600 μm				
		Horizontal specimen feed	15-30 mm or better				
		Vertical specimen stroke	45-60 mm or better				
		others Specimen retraction	40-90 μm or better				
		Specimen precision orientation	0- 10° (x/y/z axis)				
		Freezing shelf temperature	Approx. -35°C to -60°C				
		Power draw	800-2000 VA				
			Power backup with additional Servo Stabilizer	<p>online pure sinewave UPS built in AVR capable of regulating ± 30 volts</p> <p>Power factor ≥ 0.95</p> <p>Power backup in case of power failure for at least 30 mins</p>	1 No.		

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			<p>Including lead Acid free batteries OR A better alternative as recommended and provided by OEM for optimum operations</p>			
		installation	Complete installation with onsite training			
		warranty	12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers			
12	Dilatometer	purpose	Used to determine change in physical or volume dimension of sample as a function of controlled temperature	01 No.		
		Type	Horizontal, Push Rod, Dual sample			
		Sample Dimensions	Range: Length & Diameter Minimum 8mm to above,			
		Furnace Temperature	Range: -150°C or lower (Min) +700°C or higher (Max)			
		Furnace Atmosphere	Software Controllable for vacuum, inert gas and air			
		Contact Force	20mN or better (Min) 1N or better (Max)			
		ΔL Resolution	10nm or better			
		Temperature Resolution	0.05K or better			
		Measuring Range	$\pm 2500 \mu\text{m}$ or better			
		Gas Supply Module	Nitrogen gas cylinder with double regulator and certified (pressure rated and tested)		01	
			Air gas cylinder with double regulator and certified (pressure rated and tested)	01		
			2 stage moisture trappers for gas cylinders	02		
		Cooling accessory	<ul style="list-style-type: none"> To attain minimum temperature as require 	01		

			<p>by supplied furnace type(-150°C or better)</p> <ul style="list-style-type: none"> System based on Liquid nitrogen with minimum capacity 25L along with safe valve and draw device 				
		Vacuum Unit	Oil based vacuum system, to reach vacuum of 10 ⁻² mbar or better	01			
		Power backup with additional Servo Stabilizer	<p>online pure sinewave UPS</p> <p>built in AVR capable of regulating ± 30 volts</p> <p>Power factor ≥ 0.95</p> <p>Power backup in case of power failure for at least 30 mins</p>	01			
			<p>Lead acid free dry battery (1 year warranty)</p> <p>OR</p> <p>A better alternative as recommended and provided by OEM for optimum operations</p>				
		Software	<ul style="list-style-type: none"> Must be able to run system with all the accessories and to obtain all required results 				
		Accessories	<ul style="list-style-type: none"> Set of standard samples for calibration measurements with purity certificate. Automatic sample Evacuation system, Vacuum Unit, Multimode cooling and heating system Different Set of sample preparation/testing kit (Organic, in-organic, Polymer, Composite) 	01 Each			
			Desktop PC required. Of specifications recommended by Original Equipment Manufacturer. With original windows.	01 No.			
		Installation and warranty	<ul style="list-style-type: none"> Onsite Installation & Commissioning with training 12 Months from the date of installation with vendor having good local reputation with running machines and well-trained engineers 				

13	Low-Flow Anesthesia System	Purpose	Anesthesia system for ethical precise delivery of anesthetic to prepare small animals for surgical procedures. Safe for surgical personnel.	2 Nos.			
		Range	90% below OSHA Isoflurane limit. Less than 1mL of isoflurane an hour with typical use. Flow rates from 25 ml to 1 L,				
		Number of animals	Anesthetize multiple animals at once.				
		Calibration	No servicing or calibration needed.				
		Gas supply	Use room air or compressed oxygen.				
		Monitoring	Built-in display for real-time monitoring.				
		Induction Chamber	Include the Microflex Breathing Device and Mouse/Rat induction chamber.				
		Accessories	All the required hardware and connections included in the system				
	Warranty	12 Months from the date of installation					
14	Anesthesia Mask/Breathing Circuit	Purpose	Rodent face masks made from clear acrylic to anesthetise or resuscitate the rodents.	4 Nos.			
		Size	Large anesthesia mask with co-axial non-rebreathing system, 44mm diameter, 38mm deep,				
		Diaphragm	Includes extra diaphragm material (200 to 350g).				

Special Terms and conditions;

- i. Please submit the technical and financial bid (rates) on our prescribed BoQs Form and clearly mention the quoted model / brands, with complete terms and conditions signed, stamped with both bids, otherwise your bid (s) may be rejected.
- ii. Vendor are required to provide the samples against the Sr. # 5, 6 & 7 before the bulk supply.
- iii. Vendor will be responsible for Installation & Commissioning of the delivered equipment's.
- iv. Purchase / work order (s) will be awarded on **Item wise Basis.**
- v. Kindly attach the **Tender fee with Technical Bid and Bid money / CDR with Financial Bid.**
- vi. **Multiple rates of an item may also lead to the rejection of bid / item.**

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