

**SCHOOL OF BIOLOGICAL SCIENCES
UNIVERSITY OF THE PUNJAB
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TENDER DOCUMENTS

Sealed Tenders (single stage one envelope basis) are invited from the GST & Income Tax registered Manufacturers Firms /Sole Distributors/ Exclusive Dealers & Suppliers for the supply of following mentioned item (F.O.R basis Lahore) for the HEC funded project # NRPU8527 titled:“**Optimization of Simultaneous Liquefaction and Saccharification: a Novel Process Developed by Using Newly Discovered Thermoacidophilic Pullulanase**”. Tenders shall be received up to 04-08-2022 (01:00pm) and shall be opened by the Institutional Purchase Committee on same day at 02:30pm in the presence of the bidders or their authorized representatives who may wish to attend.

LABORATORY EQUIPMENTS (Estimated Cost 4.4 million)

- 01. Sonicator/Ccell Disruption System (01No.)**
Power Rating, 700 Watts, Programmable Timer, 72 Hours; adjustable Pulse On/Off for 1 Second to 24 Hours, full amplitude controlled from 1-100% ; 10 memories plus sequencing programmability for processing times, pulse on/off and amplitude can be saved to memory ; pulse mode with adjustable pulse on and off times; temperature monitoring with an optional temperature probe and overheat protection. multiple programs run in sequence, total energy output display both in watts and joules; auto tuning; overload protection; automatic fault detection and shutting down; touch screen/ lcd control. Included with: Generator, Converter, 1/2” diameter probe with replaceable tip, power supply, Power cable, Converter cable, Wrench set, Integrated Sound Proof Chamber, Adjustable Height Sample Table, 1" diameter probe with replaceable tip (optional), Continuous flow Floccell (optional), Microtip probe (optional). Warranty with parts: At least One year preferably longer, Warranty will start from the date of installation.
- 02. Shaking Oil Bath/Water Bath (01No.)**
Luminous digital LED display; No heaters, sensors or other fittings in the bath vessel; Interior & exterior stainless steel; Top covered with stainless steel cover, Temp Range 5-100 °C or better.; Temperature fluctuation 0.5 °C; Over temperature alarm protection, auto diagnostic system; Digital timer 1min to 99hr or better; Capacity 20 Liters; Warranty with parts: At least One year preferably longer, Warranty will start from the date of installation.
- 03. UV/VIS Spectrophotometer (01No.)**
Wavelength Range and Accuracy, 190 - 1100nm ± 0.3 nm for entire range; ± 0.1 nm at D2 peak 656.1nm; Photometric Range, -4 to 4 A ; Photometric Accuracy, ± 0.002 Abs at 0.5 Abs; ± 0.004 Abs at 1.0 Abs; ± 0.006 Abs at 2.0 Abs; Photometric Noise, Less than ±0.00005 A (at 700 nm) ; Photometric repeatability, Less than ±0.0002A at 0.5 Abs; ±0.0002A at 1 Abs; ±0.001A at 2 Abs; Baseline Flatness, ±0.0006 A (1100 to 190, one hour after light source turned ON); **Light Source** ; Halogen lamp for Visible range; Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required.; **Detector**: Silicon Photodiode dual detector/PMT; **Scan Ordinate Modes**: Absorbance, % Transmittance, % Reflectance; **Resolution**: 0.1nm or better; **Wavelength Range**: 185 –1100 nm; **Wavelength Accuracy**: ± 0.3nm or better for entire range; **Wavelength Repeatability**: ± 0.1nm or better; **Scanning Speed**: Selectable Variable wavelength scan rate 2nm/min to 3000 nm/min or better; **Spectral Bandwidth**: Variable (0.2/0.5/1/2/4 or 5) nm; **Stray Light**: 0.02% (220 nm NaI) or better, 0.02% (340,370 nm NaNO₂) or better, 0.5% (198 nm KCl) or better.; **Noise**: less than 0.00005 Abs (700nm) or better; **Drift**: < 0.0005 A/hr (500 nm, 1-hour warm-up); **Baseline flatness**: ± 0.0005 Abs or better; **Integral accessories**: Compatible automatic online UPS, 3kVA or better (Infosec, APC, Systek or equivalent).

