

The quotation should be supported with available printed brochure of the required item and authorized dealer certificate of the manufacturers. The quotation must reach the PI, Prof. Shanthy Sundaram (email ID: [shanthy.cbt@gmail.com](mailto:shanthy.cbt@gmail.com)), Centre of Biotechnology, University of Allahabad, Allahabad on or before 15<sup>th</sup> September, 2017.

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**Development of Biogenic 3D**  
**Nanoporous Silica-based Sensor**  
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## TECHNICAL SPECIFICATIONS

### TYPE II water purification system:

Type II System should be capable of producing 10-15 Megaohm resistivity with pretreatment cartridge, Reverse Osmosis, Electro Deionization with feed water acceptance of up to 2000micro Siemens conductivity , Fouling Index ( SDI) < 12, Total Chlorine < 3 ppm and TOC <2000 ppb.

<b>STAGE 1</b>	* 2 Stage pretreatment system
<b>PREFILTER</b>	* 5 micron and 1 micron wrapped type depth filter
	* 1 Pressure gauges
	* Less than 50 Db noise levels
	* Automatic low/high pressure cut off
	* DC pump with 0-2 pressure at 120L /hr
	* Optional filters : 0.5 micron
	* Optional filters : Activated carbon
<b>STAGE 2</b>	* Pretreatment cartridge with anti-scaling compound, 0.5micron filter and activated carbon. Should contain RFID tag for easy traceability.
	* Pump with unique temperature feed back mechanism
<b>STAGE 3</b>	* <b>High flux Thin film composite polyamide RO membrane with 94- 99% rejection</b>
	* <b>Constant flow rate System product water at any operating temp through temperature feedback mechanism.</b>
	* <b>System should have 3 way valve at RO product to drain the low quality water if any to save EDI.</b>
	* <b>Conductivity cells before and after RO would provide the efficiency of the membrane in rejecting the contaminants as well as the permeate water quality.</b>
<b>STAGE 4</b>	* Electro deionization module with auto regeneration by a weak electric current, eliminating the need for chemical regeneration or replacement of DI resin cartridges.
	<b>EDI (Electro Deionisation) module that should not require any softening pre-treatment cartridge.</b>
	* Carbon beads at cathode of the EDI module to prevent scaling of the module
	* <b>Coaxial resistivity cell with a flow through design and a cell constant of 0.01cm<sup>-1</sup></b>
	*Display both compensated and non-compensated temperature accurate within ±0.1°C.
<b>RESORVIOR</b>	A blow molded, cylindrical PE reservoir with a conical bottom and opaque walls of 30 liter. Which should be fully drainable and water should fill from bottom to avoid air bubble.
	Sensor rod float switch, programmed to have high and low level cutoff based on water level in the tank
	Should possess a tank vent filter made of soda lime, activated carbon and 0.22 micron hydrophobic membrane to trap contaminants present in atmospheric air.

#### **Pure (Type II) water:**

Resistivity.....	10- 15 Mega Ohms @ 25 deg C
TOC (ppb) .....	< 30
Flow Rate (L/hr).....	3
Bacteria.....	< 10 cfu/ml
Water Recovery.....	up to 18%
Silica Rejection.....	99.9