



Procurement projection for the next 5 years

Department of Medicinal Chemistry

Sr. No.	Description of Item	Broad Specification Parameters	Qty	Accounting Unit (Nos/ Kilo-meters/ Ton...)	Estimated Value of Procurement INR (Lakhs)
1	Continuous flow reactor	<ol style="list-style-type: none">Reactor Materials<ol style="list-style-type: none">PTFE reactor, PFA capillary reactor, Capillary reactorCatalyst cartridgeHeater (capacity upto 500°C)Pressure upto 100 barPhotochemical assembly,Electrochemical assembly (10mL)HPLC Pump: Flow rate: 1ml/min ~ 100ml/min Flow rate incremental: 1 ml Pressure: upto 2,000 psi Pressure measurement and limit.Syringe Pump with two head Solvent/acid/base resistance syringe pump body made with high quality nylon Polyethylene based syringe Programmable stepper motor, Manual flow rate control Pressure up to 5 bar. Usable for slurry, liquid gases.	1	Number	150

		<p>Air tight Glass Syringes</p> <p>4. Accessories: Non Regulated Valve, BPR cartridges, Micro Pipetter, PTFE tubing Nuts SS, Ferrule SS, Solvents bottle.</p>			
2	Fume Hood and working table	<p>Fume Hood Dimension: 1650*900*2250mm, Table Top: Granite, Base Cabinet: 2, Design Structure: Aerodynamic, Floor mounted, Airflow type: Auto by pass type (for non AC labs), Exterior Construction: 1.2 & 1.5 mm heavy duty electro galvanized CRCA (as per IS: 513) sheets with epoxy powder coating and rigid structure., Interior Construction: Chemical and Heat resistant, Fire retardant, Smooth finish, Easily Cleanable Panels made out of durable material integral work walls, 6 mm thick, Front Top Panel: Easily open able hinged top panel for easy access to Flow control Valve and electrical lighting fixtures for maintenance., Airfoil: Aerodynamic design. Horizontal airfoil mounted on the worktop made of 1.6mm thick CRCA sheet., Worktop: Chemical resistant slash and spillage proof dished Jet black granite worktop (18 to 20 mm thick)., Sash (Shutter): Vertical rising counter-balanced sash. Toughened Float Glass sash for full work area visibility (5 mm thick). Smooth and</p>	6	Number	50

		<p>light sash operation. Clear operable height (750 mm)., Lighting: Fluorescent light (20 watt, 1 nos.) with vapour proof housing and fitting for proper illumination., Electrical Utilities: 3 Nos. of 5/15 amp electrical points shall be provided on the right side of the fume hood with tube light switch. Push button starter and electrical connector shall be fixed on the top of the fume hood with all internal connections., Working Surface`& Drip Cup: 19mm thick super black granite will be provided for the table top of fume hood also PP Small drip cup for the draining of water from the fume hoods., Utility Services: Remote operated services fitting will be provided inside the fume hood with 1 Water, 4 Nos. for Gas., CENTRIFUGAL BLOWER: 1350 CFM Chemical & heat resistant PP+FRP blower with aerodynamically balanced impeller, with drain plug. Conforming to fume hood face velocity as required. Electrical motor 1.5 HP, 3 phase TEFC, IP55, Class F, direct drive foot mounted motor will be provided.</p>			
3	Digital Polarimeter	<p>(Y-translation): minimum 200 mm Maximum displacement transverse to the diamond scribe (X-translation): at least 100 mm</p>	1	Number	10

		<p>with a resolution equal to or better than 20 μm. m.</p> <p>Wafers that may be scribed: Si, III-V, Ga₂O₃, Sapphire, glass and ceramic with diameters of up to 150 mm and thickness up to 5 mm.</p> <p>Minimum size of chip that may be scribed: 10 mm x 10 mm</p> <p>Must be provided with a microscope with an objective with 25X to 40X magnification, X-Y cross-hair and illumination.</p> <p>The angle of the scribe must be easily changeable.</p> <p>The vacuum chuck for holding the wafer (pieces) to be scribed must be able to hold the largest wafer and the smallest chip mentioned above.</p> <p>The scribing force must be adjustable between 0 and 500 gm</p> <p>The position of the scribe above the vacuum chuck must be easily adjustable</p> <p>Precise turning of the wafers/chips on the vacuum chuck by 90 should be possible. should be possible.</p> <p>Fine rotation of the wafers/chips must be easily controllable with a resolution equal to or better than 0.01 should be possible. .</p> <p>After scribing, the scribe should disengage automatically. Additionally, provision for manual disengagement (lifting) of the scribe should be provided.</p> <p>Provision for manual disengagement of the vacuum pump should be provided.</p> <p>X-position indicator should be digital, with possibility of resetting the zero-position.</p> <p>The offer should include at least two spare diamond scribes</p>			
4	Chiral HPLC Column	<p>a. Suitable for separation of chiral Amide group, Aromatic compounds, Nitro group, Sulfonyl group, Cyano group, Hydroxyl group, Amino group, Carbonic acids,</p>	4	Number	15

		Amino acid derivatives b. Compatible with IPA, Methanol, n-hexane, Acetonitrile and different buffer			
5	Hot air Oven	Capacity 250 Litre or higher. Temp range: +5°C to 200°C. Control accuracy: ±0.5°C. Uniformity: ± 2.0 at 100.0°C Minimum 3 No. of Shelves with height adjustable in 25mm steps. Glass window in-built into the door for easy viewing of samples. Automatic cut off of heater & blower when door opened. Digital PID temperature controller with timer, alarms and auto tuning. Aero dynamic internal design for achieving horizontal air circulation. Solid and plain bottom without electricals. Outer body made of G.I Epoxy Coated Inner body made of Stainless steel with clear bottom CE certified. Warranty period (minimum 1 year) to be mentioned. AMC charges to be indicated.	2	Number	2
6	Solvent storage Cabinet	For the storage of flammable liquids type testing by international approved body, outer carcass sheet steel, door sheet steel, inner carcass of decor panels, door should close automatically in case of fire, cylinder lock for safe access, exhaust air connection socket on the cabinet roof.	3	Number	9
7	Hydrogenator/high pressure reactor	<ul style="list-style-type: none"> • Gas induction reactor from 1L • Materials SS, Hastelloy • Design pressures upto 200bar • Working temperatures upto 250 °C or higher • Zero leakage magnetic drive coupling 	1	Number	20

		<ul style="list-style-type: none"> • High mass transfer hollow shaft with gas induction impeller • Certified by international approved regulatory bodies • Safety valve • Body flanges with bolts & teflon • Internal cooling coil, vent, liquid / powder charging, dip tube, thermowell, safety rupture disc, pressure safety valve, flush bottom outlet, baffles, light & sight glass, handhole / manhole etc. nozzles, manual / automated valves, fittings • Suitable catalyst filtration & recycling system offered for hydrogenation • Suitable catch pot & flame arrester to collect the vent 			
8	Automated lab reactor	<ul style="list-style-type: none"> • Should be as per norms of PAT, FDA • Control of stirrer, temperature, lines of gas or liquid • pH measurement • Temperature control with cooling and heating (-78 °C to 250 °C) • Online data monitoring and event logging. 	1	Number	20
9	Multimode Plate Reader	The instrument should be a spectral scanning multimode microplate reader capable of doing photometry Absorbance, Fluorometric Intensity, Luminescence, Time resolved Fluorescence and FRET. 2. System should protocol of End point, Kinetic, spectral scanning and well area scanning read methods. 3. System should have Quadruple Monochromator based, double excitation and double emission monochromators with wavelength range of 200-1000nm in step of 1nm for fluorescence applications. 4. System should have double monochromators for photometric absorbance (UV-Visible) measurement. 5. System should have xenon	1	Number	50

		<p>Flash lamp as a light source. 6. System should support 6 to 384 well microplate for all type of measurements. 7. System should have ability to include multiple plates inside a measurement session, and combine data from all plates to the same data set. 8. System should be able to read different type of 96/384 well plates covered with lid. 9. System should have Photometry measurement range from 200-1000nm. 10. System should have wavelength bandwidth $\leq 10\text{nm}$ for florescence and absorbance. 11. System should have fluorescence detection limit of less than 1fmole/well in top read and less than 5fmole/well for bottom read for 96/384 well plates. 12. System should have luminescence detection limit less than 10amol/well for glow luminescence and 15amol/well for flash luminescence. 13. System should have should have on-board path length correction for direct quantification.</p> <p>System should have safety control on the shaking speed and plate format to avoid spilling of the liquid from wells. 27. System should be supplied with Analysis software with unlimited user license</p>			
10	Shaker Incubator	<p>1. Compact Bench top shaker with temperature control range from Ambient +5 °C to 60°C 2. Orbital shaking with orbit diameter of 25 mm 3. Temperature control accuracy $\pm 0.5^\circ\text{C}$ of set point 4. Speed 50-350 rpm with accuracy of ± 2 rpm 5. LED display for temperature and speed 6. Universal platform and clamps to hold flasks of various capacity 7. Tray Dimension : 420 x 420 mm 8. Safe view of samples through internal glass door, without impact on temperature 9. Automatic restart after power interruption 10. Thermostat cut off for over temperature protection 11. Noiseless operation 12. Operational voltage - 220 \pm 20V, 50 Hz 13. Two years standard warranty from the date of installation</p>	2	Number	12

		14. Quote for the price of CMC/AMC per year after the expiry of standard warranty 15. User list with phone number and e mail ID 16. Compatible stabilizer 17. Should meet CSA/ UL/ CE standards			
11	Fermenter	1. Type : In-situ sterilizable laboratory fermenter for microbial cultivation 2.Capacity : 5-10 litres Total volume, In-situ sterilizable glass vessel 3. Agitation system : a. Agitator: 6 blade Rushton impeller, SS 316, two pieces, for radial mixing, height adjustable Drive system: direct drive from bottom by brushless DC motor with mechanical seal, 30-1500 RPM controlled speed . b. Aeration: Aeration tube with ring sparger through rotameter c. Ventilation: Exhaust gas condenser; stainless steel, with connections for cooling water supply and return, including closing and adjustment valve for cooling water. 4. Temperature circuit: Electrical heating finger/jacket 5. Measurement and system a. Temperature control: Sterilizable Pt 100 temperature probe and temperature controller. Allows to measure and control vessel temperature within 4 to 130o C accuracy $\pm 0.1^{\circ}\text{C}$. : b. Speed control: Measurement and control of agitation speed, accuracy 30 - 1500 RPM ± 0.1 c. pH control: In situ sterilizable pH-probe and pH controller activating both a base pump and an acid pump. Measurement and control of pH value between pH 2 - 12, ± 0.05 C. d. pO2: In situ sterilizable DO (pO2)-probe with DO- controller, by configurable cascade control. For measurement and control of DO between 6 ppm and saturation, $\pm (1\% + 6\text{ppm})$. e. Antifoam/Level: In situ sterilizable conductive level or foam probe with controller 6. Communication through RS232 port. Additional ports for future use like adding gas	1	Number	15

		analyzer.			
12	Oligonucleotide synthesizer	<p>Automated DNA/RNA oligonucleotide synthesizer capable of synthesizing both natural and modified oligonucleotides for its use in developing oligonucleotide-based therapeutics and diagnostics.</p> <p>1. The system should be a closed one, always under Argon/nitrogen protective atmosphere. Open systems are not acceptable for our applications. The system must be new and not refurbished.</p> <p>2. The system should be compatible for the synthesis of DNA, RNA and modified oligonucleotides based on phosphoramidite and related chemistries.</p>	1	Number	100
13	Microwave synthesizer	<p>1. The system should allow the reaction in a temperature range 40-300 °C at least and pressure range 0-30 bar.</p> <p>2. Should allow the reaction in 50 mg to 5 gm scale.</p>	1	Number	20
14	FT-IR Spectrophotometer	<p>Scan range: 350 -8000 cm⁻¹.</p> <p>Detector: DLaTGS/DTGS.</p> <p>Signal to Noise ratio: 45000:1</p> <p>Spectral Resolution: 0.5 cm⁻¹ or better.</p> <p>Wavelength Precision: 0.01 cm⁻¹ at 2000 cm⁻¹ or better.</p> <p>UATR accessory: Monolithic diamond plate, KBr regulator</p>	1	Number	25

		<p>window,) Assorted Rectangular Spacers, KBr Die Set, Potassium Bromide Pellet Holder, 15 Ton KBr Press, IR grade KBr Powder (100g) and Adjustable Adaptor.</p> <p>Suitable latest, branded Desktop having the following configuration should be quoted along:</p> <p>Processor Minimum i5 or better Hard Disk Minimum 1TB or better RAM Minimum 16 GB or better. Monitor minimum 27 inch HD LCD or better. 4GB Graphics Card External Mouse 1:4 USB Extendor. Laser Jet Color Printer with Scanner and Xerox Facility. Branded 2 KVA online UPS with 60 minutes power back-up</p>			
15	Spectrofluorometer	<p>Excitation Source: 450 W or higher power ozone free Xenon Arc lamp with computer controlled excitation shutter.</p> <p>Excitation: Czerny-Turner monochromator with suitable grating optimized in UV, Wavelength range: 200~900 nm or more, Band pass: 0.1~15 nm or better, continuously adjustable from computer, Stray Light: Should maintain focus at all wavelengths and minimum order of stray light about 10^{-8} or better. (Double Excitation Monochromator), Wavelength Accuracy: ± 0.5 nm or better.</p> <p>Emission: Czerny-Turner monochromator with suitable grating optimized in Visible and NIR region, Wavelength range: 200~1500 nm, Band pass: 0.1~15 nm or better, continuously adjustable from computer, Scan speed: <150</p>	1	Number	130

		<p>nm/sec, Integration time: < 2 ms - > 150 sec.</p> <p>Detector: Silicon photodiode reference detector (to monitor excitation source fluctuations), UV-VIS Emission Detector: PMT, Wavelength Range: 200 – 850 nm or better and operating in photon counting detection technique, NIR range Emission InGaAs Detector, wavelength range 850~1500nm or better.</p> <p>Sample Compartment: Solid Sample Holder with front face viewing option of thin films, powders, pellets, slides, crystals etc. with variable alignment angle. Peltierthermostatted cell holder with stirring facility. Temp. range: -10 °C to 100 °C or better (with temp. ramp facility). Temp. Control of cell holder through computer software.</p> <p>Microplate Reader Attachment: Accommodates up to 96-well plates or more and allows for auto background subtraction, standard calibration curves, and kinetic analysis. Necessary Fibber optics coupling with basic instrument must be included.</p> <p>Polarizer: For anisotropy study polarize should be provided. Polarizers must be software controlled and automatic G factor calculation.</p> <p>Injection Port: Ideal for studying reaction kinetics (ideal for M^{n+} measurement). Allows small volume addition by syringe to sample without removing sample chamber lid.</p> <p>Computer Hardware: Suitable computer workstation and all interfacing hardware for steady-state and time resolved fluorescence measurement. The computer/workstation should be from a branded company with following or better configuration: Intel(R) Core i7-2600 CPU@3.0 GHz or better, minimum 2 TB storage capacity, 8 GB RAM, 27'' (inch, diagonal) full HD LCD monitor, keyboard, mouse, NVIDIA Quadro K600 1GB DDR3 Graphics Card or better</p>			
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		graphics card, minimum 4 port USB Hub (External), Computer should equipped with Color-Laser printer with Fax and photocopy facility.			
16	GC -MS	<p>Gas Flow control: Must come standard with programmable pneumatic control, Digital Pneumatic Control for setting column flow with pressure, flow and linear velocity, Carrier gas pneumatic program rates 0-100 psi/min or 0-100 ml/min.</p> <p>Volume: approximately 13 Litres or more for easy fixing and removing different types/dimension of columns without compromising rate of heating or cooling of oven, All temperature and time functions should be micro-processor controlled and displayed on the screen, Temperature should be settable up to 450 °C, set point resolution must be at least 1 °C and cool down time from 450 °C to 50 °C is 2 min or less, Maximum achievable temperature ramp rate should be 140°C/min or more, Temperature ramps should be 9 or more, Oven must accommodate upto two 60m × 0.53 mm id capillary columns, Time settings: It should be 1 min increments for values 0 to 999 minutes or wider.</p> <p>Injector: Must be configured with One Programmable split splitless capillary injector, Injector should be controlled by EPC/PPC/AFC (Programmable Split Splitless Injector (PSSI)), Temperature-programmable inlet, Operating Temperature range 50 °C to 500 °C in 1 °C increments, Heating rate of 1 °C/min to 200 °C/min or better, Two-ramps temperature program, Split ratio setting range 0 to 6000, Large-volume injection facility of up to 150 µL, PPC pneumatics include automatic control of split vent by split</p>	1	Number	75

		<p>flow or split ratio.</p> <p>Autosampler: Inbuilt autosampler with sample vial capacity 108 or better, Autosampler should be capable of injecting both the injector ports without any manual/physical adjustment, Vial size - 2ml, Waste and wash vial size - 4 ml, Sampling volume - Capable to inject from 0.1 µl to 50 µl, Injection speed: Normal, fast, slow, Viscosity settings: 0 to 15, Maximum number of injections/vial: 15, Maximum number of solvent post washes: 15, Maximum number of sample pumps: 15, Maximum number of sample prewashes: 15, Sample pre-rinse - Prepares the autosampler syringe in advance of the GC becoming ready.</p> <p>Detector: Flame Ionization Detector (FID – 1no)-Operating temperature: 100 °C to 450 °C in 1 °C increment, Minimum detectable quantity: $< 3 \times 10^{-12}$ g C/sec with Octane, Sensitivity: > 0.015 coulombs/g C, Linearity: $> 10^7$, Makeup gas: Not required, PPC pneumatics – software flow control of hydrogen and air. Mass Spectrometer (MS): Must come with EI (Electronic ionization) ionization source, Mass number range: m/z 1.0 to 1200 amu, Scan rate upto 12,500 amu/sec or better, EI Sensitivity must be 1500:1 (RMS) or more for 1pg Octafluoronaphthalene (OFN) in entire mass range, MS must have at least unit mass resolution, MS must have a linear dynamic range of at least 10^6, Filament must be of superior quality so that only a single filament needs to be installed in the unit, EI Voltage should be 10 – 100 eV, Ion Source and Filament Must be serviceable without exposing the quadrupole assembly and detector from the vacuum chamber, GC Transfer line must have independent</p>			
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		temperature control over the temp range 50 °C to 350 °C, Must come standard with RF-only pre-filter quadrupole rods to prevent contamination of the analytical quadrupole, Quadrupole must be inert & robust enough, Must utilize a discrete dynode electron multiplier detector with independent neutral and charged particle removal technologies , Pumping system must come standard with single 255 L/sec (nitrogen) air-cooled turbomolecular pump, Must have Autotune and user selected manual tune options.			
17	Melting Point Apparatus	<p>Measuring range of Temp.: 20 °C to 350 °C or better.</p> <p>Resolution: 0.10 °C or better</p> <p>Rate of Heating (°C/min): 0.2, 0.5, 1.0, 1.5, 2.3, 4.0, 5.0 etc.</p> <p>Accuracy: +0.50 °C or better upto 200 °C or above</p> <p>Heating time (50 to 300 °C): 3 mins or less</p> <p>Cooling time (300 to 50 °C): 5 mins or less</p> <p>Capillary tube: OD 1.4 mm, ID 1 mm or better</p> <p>Power supply: 220V (+/- 10%), 50Hz, 100 Watt</p> <p>Weight: 10-15 kg</p>	1	Number	5
18	Low Temp. Reaction Bath with in built magnetic stirrer	<p>Temp. control range Temp. control accuracy : -80 °C to 0 °C within ± 1.0°C</p> <p>P.I.D. control : 450W</p> <p>Digital, Membrane key switch, : 100-800 rpm</p>	1	Number	10

		<p>Digital : Auto start & stop timed</p> <p>Overheat protector, Over-load relay for compressor, Breaker for electrical leakage and excess current, Sensor fault, Independent over temperature protector</p> <p>: CFC free, Air cooled, output 300W/350W, ø180 x 140D mm, 3.5L, 50 - 500ml/ around ø90</p> <p>K thermo-couple : 1°C,digital setting</p> <p>Speed control motor 25W : Speed control motor, Output 15W</p> <p>: 10.3A, 1.03kVA, 220VAC, 50/60Hz</p> <p>Temp. control Magnetic Stirrer Temp. setting, display, Magnetic Stirring/Rotation range Rotation Setting & Monitoring Operation Time, Safety features</p> <p>Refrigerator Bath dimension: ø180 x 140D mm</p> <p>Bath volume: 3.5L</p> <p>Range of vessel size / dia Sensor: 50 - 500ml/ around ø90, Sensor: K thermo-couple,</p> <p>Min. setting temperature: 1°C,digital setting,</p> <p>Heater capacity: Speed control motor 25W,</p> <p>Stirring motor : Speed control motor, Output 15W,</p> <p>Max. applicable bottle size: 500mL,</p> <p>Power consumption, 10.3A, 1.03kVA,</p>			
19	Solvent purification System (SPS)	<p>The system should be capable of operating with 5 solvents</p> <p>The accepted level of dryness should be below 1 ppm of</p>	1	Number	30

		<p>water and oxygen in the solvents. The manifold material should be of stainless steel Should be fitted with one main inlet pressure and vacuum gauge Independent regulation for each solvent should be possible. Independent pressure gauges for each solvent should be provided Stainless Steel Clamping posts should be provided The solvent flow rate must be up to 1L/minute To include Double Purification Column set (2 filter column in series) 5 numbers Each purifier column with one gallon size Should include 17L storage reservoirs, stainless steel material (5nos) All fittings should be Swagelok quick connect fittings (5nos) The system should be integrated with Solvent storage safe cabinet The system must include an oil free diaphragm vacuum pump. The capacity of the pump must be 20L/min, ultimate vacuum 8 mbar.</p> <p>Should include One PTFE hose pipe for purging</p>			
20	Magnetic stirrer with hot plate	<p>With a heating power of 500 W or higher, the hotplate reaches</p> <p>a maximum temperature of 300 °C or higher in a significantly reduced time period</p>	20	Number	15

		<ul style="list-style-type: none"> • Safety circuits avoid an overheat situation of your hotplate: autocut - if the temperature overshoots the heating will be powered off • suitable for stirring even higher viscosity media or volumes of upto 20 liters of water with ease • Speed is adjustable from 100 to 1,200 rpm or higher with at an accuracy of up to $\pm 1\%$ 			
21	Refrigerator	500L or hugher, Stamped Metal Body, Chrome Trim, 2 HalfWidth Clear Crisper Drawers, Gallon Door Storage, Temperature Management System, 1 Fixed Full-Width Freezer Shelf, 3 Easy-Clean Spill-Proof Glass Shelves, Energy Star Rated-5.	1	Number	1

22	Glove Box	<p>Inner Box Dimensions 900-950 mm x 1185-1250 mm x 775-800 mm [H x L x D] Glove box should be modular and expandable with bolted side panels. Two glove ports (diameter~220mm) with anti-corrosion coating, O ring sealed One pair gloves should be supplied with the system. Leak rate < 0.05 Vol %/h or lower Front Window Polycarbonate 10mm with special coating for chemical & scratch resistance Dust filter 0.3 micron, class H13 should be included in the work station Stainless Steel height adjustable shelves (3 Nos) should to be included Automatic Box pressure range ± 15mbar with oil-free pressure relief valve Automatic positive pressure regulation system without vacuum pump should be possible. It should include Water proof Foot pedal for box pressure manipulation Glove box should have 4 DN 40 feed through, one should be electrical Fluorescent lamp should be front mounted with Automatic switch off facility System should be integrated with heat exchanger Should be fitted with stand having castors and machine feet</p>	1	Number	30
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Department of Natural Product

Sr. No.	Description of Item	Broad Specification Parameters	Qty	Accounting Unit (Nos/ Kilo-meters/ Ton...)	Estimated Value of Procurement INR (Lacks)
1.	LC-MS	<p>A Sensitive LC-MS system for qualitative, quantitative estimation of small molecule, protein/peptide analysis, Met ID, impurity profiling & Natural product analysis and other biological sample applications. The instrument should be configured with a quadrupole mass filter for the efficient transmission of ions in MS mode and selection of precursor ions for MS-MS analysis.</p> <ul style="list-style-type: none"> • The Quadrupole mass range 5 – 1500 m/z or better • The Analyzer should have more than one aspect for the efficient ion separation with maximum resolution 	1	Numbers	150
2.	Lyophilizer	<p>Condenser Volume: 2.5 - 5 Litres Condenser Temperature: - 55° to - 85°C Material of condenser chamber: Smooth interior that allows easy cleaning. Cleaning must not damage cooling coils during ice core removal. Ice Capacity (24hrs / Max) : 2.5 kg – 5 kg Cooling Media : CFC free Defrosting Automatic</p>	1	Number	

		<p>Vacuum pump: Suction capacity 3600 – 12000 L/hr with filter and all accessories including exhaust filter with oil mist and odor filter elements along with vacuum pump oil and grease.</p> <p>Trap to prevent migration of organic solvents to vacuum pump</p> <p>Electrical Rating / Full Load Amps : 230 V, 50/60 Hz, 1Φ /12A / 20A</p> <p>Drying chamber: Manifold with valves: Acrylic drum type with 6-12 port, drum manifold for tray drying and full set of compatible adaptors for different applications. Rubber valve design for easier flask fitting, sealing, drying and removal.</p> <p>Adapter plate: Shelf holder with shelves and trays : 3 - 4 numbers with adaptors</p> <p>Flask or Bottles : Round bottomed Flask / bottles: 100 ml & 250 ml (4 each)</p> <p>Display: User friendly interface with touch screen controller with simple sub menus for language selection, pressure, temperature units, operating & setting parameters, alarm alerts vacuum in mBars and real time clock. Readout of both temperature and pressure for process guidance and sample security.</p> <p>Table : Portable table/trolley for keeping the instrument and pump</p>			
3.	Nitrogen Evaporator	<ul style="list-style-type: none"> • It should have Multi racks for tubes and vials to be evaporated • It should have evaporation of up to 48 samples in tubes ranging from 10-16 mm (outer diameter), less than or equal to 45 mm in length, 10-20 mm (outer diameter), ranging 	1	Numbers	10

		<p>from 75-165 mm in length. When operating in 24 position mode (by plugging 24 nozzles) the system can parallel process samples in tubes ranging from 12-30 mm (outer diameter), ranging from 75-165 mm in length. Independent row control (6 rows of 8 nozzles each).</p> <ul style="list-style-type: none"> • Pressure Regulator, and P/N 353480SP Supply Connection Set). • Minimum Pressure 4 bar (0.4 MPa, 58 PSI) • Pressure Required for Full Capability 6 bar (0.6 MPa, 87 PSI) • Maximum Pressure 9 bar (0.9 MPa, 130 PSI) • The water bath should operate over a temperature range from ambient to 90°C. The evaporation should be automatically paused (the gas is turned off) when the lid is opened and resumed when the lid is closed. 			
4	FACS cell sorter	<p>MulticolourFlowcytometryAnalyser cum High Speed cell Sorter System must be quotedwith at least 4 lasers (i.e. Blue Laser of 488nm, Red laser of 632-642 nm, Violet laser of405nm & true UV laser 355nm) or more laser.</p> <p>2. System must be able to perform at least 16 colour / fluorescence output or more from thegiven 4 lasers (solid state) simultaneously in addition to forwards scatter and side scatterparameters.</p> <p>3. System must have option for future upgradability with at least 1 or 2 more lasers toincrease simultaneous output of fluorescence parameters.</p> <p>4. System must have at least 4 pin holes and</p>	1	Numbers	200

		<p>additional at least one pinhole / beam spots or more keeping in mind simultaneous firing of at least 4 lasers. The equipment should have dedicated beam spots for each of the individual lasers.</p> <p>5. All the optics of the system must be fixed aligned or require minimum user level alignment for day to day operations.</p> <p>6. The system must be of closed architecture in order to avoid accidental exposure to lasers, optical paths and filter assembly.</p> <p>7. The system should be a cuvette-based cell sorter or equivalent to avoid any user level day-to-day laser alignment.</p> <p>8. The system must be able to perform high speed cell sorting with acquisition.</p>			
5	Shaking Water Bath	<ul style="list-style-type: none"> • Shaking Water Bath for working temperatures from +20 °C to +99 °C • Shaking frequency should be adjustable from 20 to 200 rpm • Shaking frequency should be indicated on multi-display (LED) • Shaking stroke should be 15 mm with integrated circulation pump • Working temperature range should be +20 °C to +99 °C • Temperature stability should be (°C) ±0.2 • Setting / display resolution should be 0.1 °C • It should have splash-proof keypad and main switch • Electronic timer for setting the running time should be (0:01 to 9:59 h:min) 	1	Numbers	05

		<ul style="list-style-type: none"> • It should have On-line communication interface • It should have early warning system with high and low temperature limits • It should have drain screw for conveniently emptying the bath • It should have dry-running protection / safety temperature fixed at 130 °C • It should have easy temperature control software • It should be easy to remove shaking carriage • It should have water bath covers to prevent liquid losses due to evaporation. • It should have all-purpose spring tray for flask • It should have base tray with spring clamps for 96 well plates • It should have alarm for high and low temperature • Bath tanks and all parts in contact with the bath liquid should be made of high-grade stainless steel • Heating capacity should be (kW) 2 • Filling volume should be 8...20 liters • Ambient temperature 5...40 °C • Warranty of 3 year is required • A written contract of good after sales service and technical support should be provided. • The Vendor should have a good service and application support backup. 			
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Department of Pharmaceutics

Sr. No.	Description of Item	Broad Specification Parameters	Qty	Accounting Unit (Nos/ Kilo-meters/ Ton...)	Estimated Value of Procurement INR (Lacks)
1.	Scanning Electron Microscope	<p>The Field Emission Scanning Electron microscope (FESEM) with Energy Dispersive Spectroscopy (EDS) system</p> <p>FE-SEM (Field Emission -Scanning Electron Microscope), a high-resolution scanning electron Electron Gun</p> <p>High Stability Field Emission Schottky Emitter</p> <p>Magnification</p> <p>25x to 10,00,000x or better,user should be able to enter the desired magnification.</p>	1	Numbers	500
2.	X ray diffractometer	<ol style="list-style-type: none"> 1. Maximum usable range $-111^{\circ} < 2\theta < 168^{\circ}$ 2. 4 kW generator supporting all X-ray tubes 3. Lifetime goniometer accuracy, using precisely aligned encoders and path tracking technology 4. 60 kV operation 5. 2θ linearity equal or better than $\pm 0.01^{\circ}$ 	1	Numbers	200
3.	Laser Diffractometer	<p>The system must be capable for determination of Particle size distribution of Dry powder, Suspension, Emulsion</p> <p>Detector: Photodiode Array (min. 80 or more)</p> <p>Lasers : 2 laser or more; Power 2 mW - 5 mW (405nm and 650 nm)</p> <p>Laser type: Laser should be of Solid state laser Diode Light/semiconductor</p> <p>Repeatability: $\leq \pm 0.6\%$ or better</p>	1	Numbers	30

4.	Hot Stage Microscope	Optical system with Perfocal distance of 60 mm with built-in Daylight Attachable mechanical stage 35 X 25 mm travel range. Vernier scale 0.1 mm. 360 degrees rotatable polarizer, P-I Intermediate tube with 360 degrees rotatable	1	Numbers	30
5.	SAXS	Total flux must be higher $\geq 1 \times 10^8$ cps at the detector and $\geq 4 \times 10^8$ cps at sample in SAXS measuring conditions. Each source must be a point focus X-ray source with a spot size $\leq 70 \mu\text{m}$ and a power $\geq 30 \text{ W}$ X-ray source spare parts for 5 years must be part of the bid.	1	Numbers	200
6.	Rheometer	Motor Technology Direct Current Synchronous Motor Min. Torque (Rotation) 6nNm or better Min. Torque(Oscillation) 8nNm or better Max. Torque 200mNm or better Radial Motor Bearing Air Bearing	1	Numbers	60
7.	Raman Spectrophotometer	Raman Spectrometer: A large focal length achromatic spectrograph equipped with research grade microscope capable of producing Raman spectra in the range 50cm^{-1} to 4000cm^{-1} . reflective optics :	1	Numbers	100
8.	Bioprinter	Minimum Three printhead mounts compatible with including Standard Pneumatic Printhead Electromagnetic Droplet Printhead Temperature-controlled Pneumatic Printhead Temperature Controlled Printbed (4 C to 60 C)	1	Numbers	50
9.	Electrospinning	Spinning arrangement Vertical, Horizontal, Inert Gas Spinning, Under solvent spinning Input voltage 90-240 VAC+/- H.V. Power supply Voltage output Range : 0-50 KV and 0-60 KV Output Current : 0-400 uA and 0-1 mA Dual Digital Panel Meter for Voltage and Current Voltage	1	Numbers	10

10.	UPLC with PDA and Fluorescence Detector	Quaternary solvent system, pH 2-12,	1	Numbers	40
11	HPLC-	Binary system, with PDA, RI detector, RP columns compatible	1	Numbers	20
12	Spectrofluorometer-	High sensitivity S/N > 2,500 (RMS) Many options include, solid sampling, spectral correction and quantum yield with ambient and LN2 cooled integrating spheres. High-speed scanning up to 120,000 nm/min Emission. Wavelength range: 200 to 1010 nm Emission (up to 850 nm, Excitation) Validation included.	1	Numbers	20
13	UV- Spectrophotometer	Optical System Czerny-Turner mount Single monochromator Fully symmetrical double beam type Light Source Halogen lamp, Deuterium lamp Wavelength range 190 to 1600 nm Wavelength accuracy +/-0.3 nm (at 656.1 nm) +/-1.0 nm (at 1312.2 nm) Wavelength repeatability +/-0.05 nm (UV-Vis), +/-0.1 nm (NIR)with temperature control	1	Numbers	10
14	FT - Mid IR & NIR	Display Wavenumber Range 15,000 to 0 cm-1 (standard) Wavenumber Accuracy Within ± 0.01 cm-1 (theoretical value) Maximum Resolution 0.7 cm-1 0.4 cm-1 Optical System Single beam	1	Numbers	20
15	Automatic Karl Fischer titrator	<ul style="list-style-type: none"> Vortex stirrer for vigorous and homogenous stirring with specially designed glass propeller for total chemical inertness. Quick interchangeable burette assemblies with 	1	Numbers	10

		<p>intelligent recognition for its volume size. Burette factor for dispensing corrections is available for true end point calculations.</p> <ul style="list-style-type: none"> • System recognise proper connectivity of other peripherals like Burette, Stirrer, Electrode etc. gives indication in case of improper connectivity. • Composite Differential Electrode Amplifier unit for Potentiometric and Voltametric / KF Titrations, having connectivity to various Electrodes. Temperature Sensor with 4-line measurement technique ensures correct temperature. 			
16	Dissolution Tester	<ol style="list-style-type: none"> 1. Speed: 20-250 or more RPM \pm 1 RPM or more 2. Resolution: 1 RPM 3. Accuracy: \pm 0.5 RPM 4. Depth adjustment: 25 mm to 40 mm 5. Temperature range: 10-50 °C; accuracy \pm 0.1 °C 6. Temperature control: Thermostat 0-85 °C or more or microprocessor based 	1	Numbers	30
17	Disintegration Tester	<p>Automatic microcontroller based tablet disintegration tester meeting akkpharmacopeoal requirements</p> <p>Dual motor system with SS body</p> <p>Dip speed: 30 dpm or better</p> <p>Stroke length: 5.5 cm or better</p> <p>display 20 x 2 backlight display</p> <p>water bath 5 to 50 degree celsius accuracy 0.2</p> <p>2 baskets</p> <p>03 years warranty</p>	1	Numbers	2
18	pH and Conductivity Meter	<p>Temperature Range 0 to 150 Degrees centigrade</p> <p>CONDUCTIVITY METER SPECIFICATIONS</p> <p>Measuring Range Auto-Ranging 0.1uS/cm to 199.9mS/cm</p> <p>Resolution 0.01</p> <p>Accuracy 0.5%</p>	1	Numbers	2

		NS pH Range -2.00 to 19.999 Resolution 0.1/ 0.01/0.001pH Relative Accuracy +/- 0.002 pH			
19	Refractometer and Polarimeter	Principle Automatic digital polarimeter with symmetric angular oscillation using the optical-null balance method Light Source Tungsten-Halogen lamp (WI), Sodium lamp (Na), Mercury lamp (Hg) (Up to two light sources can be installed.) Modulator Faraday cell Wavelength 253, 280, 296, 313, 302, 325, 334, 365, 405, 436, 546, 578, 589, 633, 880 nm Aperture 1.8, 3 and 8 mm diameters Angular Range $\pm 90^\circ$	1	Numbers	14
20	IR moisture balance	Acceptable Sample 5 gms, 10 gms or 25 gms Scale Range 0- 100% Accuracy 0.2% Heater 250 Watts IR Lamp Temperature Control Temperature Control Accuracy $\pm 1^\circ\text{C}$	1	Numbers	3
21	Bath sonicator	Operating frequency 33 ± 3 KHz, for all general purpose cleaning is highly recommended. ... Micro controller based timer range 0 to 15 minutes upto 3.5 ltrs. ... Thermostatic heating. Digital Temperature Controller (optional) if required.	1	Numbers	3
27	Centrifuges	The centrifuge must be supplied with Fixed Angle light weight non corrosive Rotor capable of running a minimum of 8 x 50 ml conical tubes at speeds of at least 24000 x g.	2	Numbers	10
28	Muffle Furnace	<ul style="list-style-type: none"> T - max 1100°C Heating from two sides by ceramic heating plates. Temperature uniformity of ± 5 K 	1	Numbers	3

		<ul style="list-style-type: none"> • Thermocouple type N (1100 °C) • Optional flap door. • Adjustable air inlet integrated in door. • Exhaust air outlet in rear wall of furnace 			
29	Automatic Digital Melting Point Apparatus	Temp range: ambient to 400°C Temp sensor: 1000 ohm Pt RTD Heat-up time: 0.1 to 20°C per minute Interface: USB, for flash drive Display 7" high-definition color	1	Numbers	5

Department of Pharmacoinformatics

Sr. No.	Description of Item	Broad Specification Parameters	Qty	Accounting Unit (Nos/ Kilo-meters/ Ton...)	Estimated Value of Procurement INR (Lacks)
1.	Nvidia DGXS-2511 or server/ workstation	Nvidia DDR4 SDRAM with ECC Intel Xeon E5-2698 v4 Ai System (NVIDIA Tesla V100 GPU/ Tesla P100 GPU/Tesla K40)	1		50

Department of Pharmacology & Toxicology

Sr. No.	Description of Item	Broad Specification Parameters	Qty	Accounting Unit (Nos/ Kilo-meters/ Ton...)	Estimated Value of Procurement INR (Lakhs)
1.	Rodent Echocardiography	Ultrasound based animal imaging system	1	Nos	200
2.	Microinjection System	Injection of minute volumes (pico or femto liter) into single cell	1	Nos	30
3.	2D Gel Electrophoresis Unit	Two dimensional electrophoresis system for separation of proteins	1	Nos	15
4.	Student Physiograph	Measurement of tissue response ex vivo (8 liter)	5	Nos	40
5.	Powerlab Computerised data acquisition system and Catheter for rodents	ECG/MG	1	Nos	40
6.	IVC System	Animal cage system for small animal house	1	Nos	14
7.	Hypoxia chamber	Exposure of animals to various atmospheric conditions	1	Nos	30
8.	Modular animal house breeding facility	For breeding of small animals for inhouse use	1	Nos	30
9	Seahorse equipment	Extraflux analyser for Assessing mitochondrial activity	1	Nos	80

10.	Fluorescent Microscope	Microscope capable of imaging and provided with image analysis softwares	1	Nos	20
11.	Corneal confocal microscopy	Morphological and quantitative analysis of ocular surface microstructure Confocal microscope uses a slit scanning design used to measure Neurological changes	1	Nos	100
12.	Metabolic cages	For safety pharmacology study	1	Nos	20
13.	Hematology analyzer	For Animal blood analysis	1	Nos	20
14.	Electrophysiology setup	For single cell recording Neurons	1	Nos	80
15.	Telemetry system	For physiological studies in live conscious animals	1	Nos	80
16.	Animal Anesthesia system	Rodent gaseous anesthesia system	1	Nos	10
17.	Necropsy table	For surgical procedures and necropsy studies	1	Nos	5
18.	Metaanalysis system	Automated metaphase analysis system	1	Nos	80

List of Equipment for Administrative Department, NIPER-Kolkata

Sl. No.	Description of Item	Broad Specification parameters	Qty	Accounting unit	Estimated value of Procurement (in Lakh)
1.	Desktop	Standard for Official use purpose	100	Number	75.00
2.	Printer	Standard for office use with Scanning system	100	Number	20.00
3.	Photocopier	Standard as per requirement	5	Number	8.00
4.	Air Conditioner	5 star	50	Number	20.00