

## NPL Project Procurement List 2019-20 as on 6th Dec.

S.No.	Instrument Name	QTY
1	Inductively Coupled Plasma – Mass Spectrometry (ICP-MS)	1
2	Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)	1
3	SEM with EDAX	1
4	Electrochemical Analyser	1
5	Laser Flash Analyser (LFA)	1
6	CHNS Analyser	1
7	Moisture analyzer	1
8	FTIR	1
9	System for Primary pH measurement	1
10	Balance of 40 kg Capacity	1
11	Balance up to Six decimal place	1
12	Microwave Digester System	1
13	High Performance Liquid Chromatography -Mass Spectrometry (HPLC-MS)	1
14	10 computers, printer and scanner	1
15	JCPDS data bank and Pearson's data Bank (Software for the Structural Analysis)	1
16	Planetary Ball mill	1
17	Charpy and Hardness Tester	1
18	FT-NMR	1
19	Supporting equipment's/Minor equipment's (deionized water plants, chemical lab accessories as per ISO, Blaine fineness etc.)	1
20	Dedicated UPS for the sophisticated Instruments	1
21	XRF	1
22	DLS	1
23	Rheometer	1
24	Flash point determination and density meter equipment	1
25	UV-Spectrometer	1
26	Vacuum sealing unit	1
27	5 kN Dead Weight Force machine	1
28	Climatic Chamber	1
29	Modular Pressure Controller	1
30	Turbo Molecular Pump	1
31	Robotic mass comparator	1
32	Stylus based Surface Texture Parameters Measuring Instrument	1
33	Rockwell Hardness Machine	1
34	Gauge Block Comparator	1
35	Turbo Molecular Pump for orifice flow system	1
36	FEL Spectral irradiance standard uncalibrated lamp	3
37	Tungsten filament uncalibrated standard lamps for Luminous Flux measurements	23

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38	Tungsten filament standard lamps for Luminous Flux measurements calibrated from NMI	3
39	Luminous intensity uncalibrated standard lamp	5
40	Luminous intensity standard lamp calibrated at NMI	3
41	Vortex Phase plate(633nm) with mount	1
42	Tips, Centrifuge tubes, pipettes	1
43	Shoe covers, cotton gloves, tables clothes etc.	1
44	Hand blower, Ladder, tape, Laser Distance Meter	1
45	Surge Burst with Line Impedance stabilization Network (LISN) Flicker & Harmonics Analyzer Bulk current Injection probe	1
46	Robotic Arm Positioner	1
47	Synthesized Signal Generator	1
48	Arbitrary Waveform Generators	1
49	Oscilloscope upto 2.5 GHz	1
50	Receiver cum Spectrum Analyzer	1
51	Broadband Amplifier from 10 kHz to 200 MHz	1
52	Broadband Amplifier from 200MHz to 1GHz	1
53	Broadband E-field Probe with meter	1
54	Gauss Meter	1
55	Electro Static Discharge Simulator System with Gun	1
56	PCB Printing System	1
57	Double ridged waveguide horn antenna	1
58	Log Periodic Antenna from 30MHz to 3GHz	1
59	Double-Ridged Waveguide Horn 18 - 40 GHz with pre amplifier	1
60	Universal Testing Machines with low capacity load cell	1
61	Impact Tester	1
62	X-ray fluorescence Spectrometer	1
63	Vickers Micro-hardness tester	1
64	Extensimeter	1
65	Thermo Gravimetric Analysis (TGA) with auto sampler	1
66	Differential Scanning Calorimeter	1
67	Thermal Conductivity Measurement	1
68	Thermal Mechanical Analyzer	1
69	Dynamic Mechanical Analyzer	1
70	UV-vis-NIR	1
71	FTIR	1
72	X Ray Diffraction with Fiber Assembly	1
73	Optical Microscope	1
74	FESEM with WDS, electron beam lithography	1
75	Gel Permeation Chromatography	1
76	Precise Microbalance	1
77	Impedance Spectroscopy	1
78	Source Meter, Current pre-amplifier, wave form generator, Lock-in amplifiers	1

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79	Probe Station	1
80	Cryogenic System	1
81	Evaporation System for making Electrodes	1
82	Test Equipment for Combustibility	1
83	Thermal Shock Test Chamber	1
84	Xenon Arc Tester, UV Test	1
85	Soxhlet Automatic Extraction	1
86	Bundesmann Rain Test	1
87	Salt Spray	1
88	Gas Permeability Tester	1
89	Contact Angle Measurement System	1
90	Fungal Resistance Measurement Test Chamber	1
91	Particle Size Analyzer	1
92	Chamber for Chemical Resistance against Acid	1
93	Vector Network Analyser	1
94	Static Charge Decay Meter	1
95	Fatigue Tester	1
96	Inductivity Coupled Plasma Mass Spectrometry(ICP-MS)	1
97	Inductivity Coupled Plasma optical emission Spectrometry(ICP-OES)	1
98	High Temperature Powder XRD	1
99	GD MS (Glow discharge mass spectroscopy)	1
100	Accessories like UPS, Data Acquisition System, dehumidifier, glass flow, Mass Flow, Temperature Controllers, other miscellaneous equipments etc.	1
101	Microwave digestion	1
102	Full speed Goniophotometer (C-type Goniophotometer System) in compliance with IES-LM-79-08, IES- LM 46-98	1
103	Sphere Spectroradiometer System (2.0 m Diameter) in compliance with IS-16106:2012, IES-LM-79-08, IES-LM-82-12	1
104	Optical Radiation Test system for spectral irradiance, spectral radiance, spectral responsivity in the range 200-2500 nm and in full compliance with IS 16108:2012	1
105	Aging Life Test Systems (a) Aging-Life Test System for LED package, Array and module (b) Aging-Life Test System for LED lamps and Luminaires (in compliance with IS 16105:2012, IES LM-84-14)	1
106	Luminance Measuring Systems consisting of : (a) Array Spectroradiometer based Luminance measurement System (b) CCD based Image Luminance Measurement System	1
107	Test Instruments for testing effect of Voltage Surge, Voltage Dips, ESD, EFT, etc.	1
108	Gonio-colorimeter System for measuring Color Temperature and color coordinate of lamps and luminaires with the provision of fixed source position and fixed detector	1

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109	Intensity Bench consisting of Precision Motorized Stages, Dark Cabinet, Baffle System, Alignment System, Four channel Power Supply, Digital Multimeters, Power Analyzer, Shunt, Illuminance Meter, Luminance Meter, Colorimeter, Spectroradiometer, Luminance Source, Automation System, UV Detector, UPS, PC, Printer	1
110	Primary Spectral Irradiance Measurement System in the range 200-2500 nm	1
111	Standard light sources (Calibrated from NMI)	50
112	Glass scale Specification: Range= 300mm	2
113	Micropipette Specification: Volume: 5µl, 100µl, 1000µl	1
114	Copper cables three core	5
115	Wind sensor, Direction sensor, Temp. humidity sensor with data logger	6
116	SODAR Antenna Frame Construction	6
117	DSO with function Generator	1
118	Electrical Component	100 Each
119	DC Regulated Power supply	1
120	Soldering Station	1
121	633nm He-Ne Laser interferometer Specification: Vacuum wavelength resolution= +-0.05ppm Liner measurement accuracy= +-0.5ppm Resolution= 0.001µm	2
122	Granite Base Mechanical Bed along with guide ways for line scale calibration Specification: Dimension=2500mm* 750mm*150mm	1
123	High Stability Liquid Temperature Bath (-5 °C to 95°C)	2
124	PRT with Digital Temperature Indicator (-196 °C to 420 °C)	3
125	Climatic Chamber (Temperature range: -25 to 80	2
126	Pressure Generating System (consisting of portable air compressor, computer controlled regulator with the pressure range up to 1bar through a computer with minimum requirement 4GB RAM with PCI Express DAQ card slot and DAQ Card)	2
127	Turbo Pump (Full range gauge $10^{-8}$ mbar to $10^3$ mbar, pumping speed greater or equal to 250 litre/s)	1
128	Blood Pressure Simulator (Range better than 300 mm of Hg, Accuracy less or equal 0.5% reading +1mm of Hg)	1
129	Pressure controller with suction pump	1
130	Alternating pressure generator	1
131	Alternating AC Voltage Supply (5V step size or better)	2
132	Alternating DC Voltage Supply (0.1V step size or better)	2
133	Voltmeter	2
134	Current voltage source meter	1
135	Limit plug gauge	2

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136	High Pressure Accessories (consisting of Piston, Cylinder and Metallic Float Valve upto 140 MPa or better, )	2
137	Magnetron sputtering system	1
138	Cryogen free low temperature magneto transport measurement system	1
139	Metal evaporation system	1
140	Microscope	1
141	Wire bonder	1
142	Fabrication Torrefaction furnace 1kg/hr ( custom made)	1
143	Fabrication Torrefaction furnace 10 kg/hr ( custom made)	1
144	Bomb calorimeter	1
145	Hammer /grinder machine,	1
146	Hardgrove grinding tester	1
147	Ash fusion tester	1
148	Software for CHNS	1
149	Data Acquisition systems	1
150	Microwave furnace	1
151	Shredder with Grinding/Hammer Mill	1
152	Rotary evaporator	1
153	3D printer	1
154	Super-critical Drying setup	1
155	Laminar Hood with Humidity control	1
156	PCs for Data analysis	3
157	GPS + Logger for On road Survey	1
158	Microwave Digestion System	1
159	Secondary Dilution Tunnel	1
160	Multigas Analyser (CO, CO2, NH3, Nox, SO2 etc)	1
161	Dilution Sampler	1
162	Particle Sizer	1
163	Size Segregated Impactor for Emission	1
164	Rotavapor	1
165	Attachment/upgradation of Aethalometer	1
166	Freezer (low Temperature)	1
167	CO Analyser	1
168	UVA, UVB radiometers along with data logger, solar panels and mounting kits etc.	2
169	Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES)	1
170	Refractory round muffles to withstand temperature upto 1600°C approx	2
171	1-Octadecene	2
172	3-Aminopropyl triethoxysilane	1
173	Aluminium Nitrate (Nona Hydrate) SQ	2
174	Aluminium Wire, 1mm dia, 99+%	1
175	Copper foil, 0.025mm thick, annealed, uncoated, 99.8%	1

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176	Hydrochloric Acid	1
177	Nitric acid, 70%, extra pure, SLR, d=1.42	1
178	Pepsin 1:3000 ex. Porcine Stomach mucosa	2
179	Bovine Serum Albumin, pH 6-7, 98%	3
180	Gold Chloride Trihydrate, 49%	1
181	Anisole 99%	1
182	Cetyltrimethyl ammonium bromide AR 99%	3
183	n-Hexane	2
184	Tetraethyl orthosilicate	1
185	Isopropanol 99%	10
186	Acetone 99%	10
187	Toluene	2
188	Diethylenetriamine penta-acetic acid	1
189	Ferric Chloride	1
190	Ethanol AR China	8
191	Culture tube 5 ml	75
192	Culture tube 10 ml	75
193	Culture tube 30 ml	50
194	Fabrication of Customized UV Luminescent Testing Cabinet (Job Work)	1
195	Fabrication of SS Memento (Traceability Pyramid) (Job Work)	3
196	Samsung curve 27 inch TFT monitor	1
197	Spectral Irradiance Standard Light Sources with colour filters calibrated at NMI	3
198	Metrology/Research Grade Optical components: a) Plain Mirrors	10
199	b) Optical Polarisers	12
200	c) Plano Convex Lens (f=75mm)	2
201	d) Plano Convex Lens (f=100mm)	2
202	e) Plano Convex Lens (f=150mm)	2
203	f) Plano Convex Lens (f=250mm)	2
204	g) Micro objective 10X	1
205	h) Micro objective 20X	1
206	i) Micro objective 40X	1
207	j) Half Wave Plate 532 nm	3
208	k) Half Wave Plate 632 nm	3
209	l) Quarter Wave Plate 532 nm	3
210	m) Quarter Wave Plate 632 nm	3
211	n) Neutral Density Filter Variable	3
212	o) Neutral Density Filter 0.01%	3
213	p) Neutral Density Filter 0.1%	3
214	q) Neutral Density Filter 5%	3
215	r) Neutral Density Filter 10%	3
216	s) Dichromic Mirrors	10
217	t) Ground Glasses	6

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218	u) Nano Positioners	10
219	v) Optical Crystals	6
220	w) Pellicle Beam Splitters	4
221	x) Non polarizing dielectric cube beam splitter	4
222	y) Glan Thomson Polarizer	2
223	z) Beam stearer	3
224	aa) Dove prism	2
225	bb) Right Angle Prism	2
226	cc) Axiom	2
227	dd) Cylindrical Lens 50 mm	2
228	ee) Cylindrical Lens 100 mm	2
229	ff) Cylindrical Lens 150 mm	2
230	gg) Beam Dumper	6
231	hh) Variable Circular Apertures	10
232	ii) Plate Beam Splitter	5
233	jj) Diffraction Grating	5
234	Optical Colour Filters with wheel for various wavelengths in the Visible, UV and NIR regions (Metrology/Research Grade)	50
235	Interference filters for various wavelengths in the Visible, UV and NIR regions (Metrology/Research Grade)	40
236	Optical fiber coupler with lens and aligner: single mode and multimode fiber couplers in the wavelength range 710 nm, 1064 nm and Length: 1 m (Metrology/Research Grade)	5
237	Calibration of existing Standard Light Sources for Luminous Flux, CCT, Color coordinates, CRI, Luminous Intensity directly from NMI	6
238	Calibration of existing Illuminance Meters directly from NMI	3
239	Calibration of existing Luminance Meter directly from NMI	1
240	Calibration of existing Luminance Source directly from NMI	1
241	Calibration of Commercially available LED Light Sources for the following parameters a) Luminous Flux	5
242	b) CCT	5
243	c) Color coordinates	5
244	d) CRI	5
245	e) Luminous Intensity with electrical parameters directly from NMI	5
246	Commercially available LED light sources	235
247	Laser Diode Sources	8
248	Data Acquisition Card/Development Boards	8
249	GPIB cards for interfacing laboratory equipments	2
250	Flashing Light Sensors	NIL
251	CIE standard documents for Photometry, Radiometry and Colorimetry	15
252	IES standard documents for Photometry, Radiometry and Colorimetry	20

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253	IEC standard documents for Photometry, Radiometry and Colorimetry	55
254	BIS standard documents for Photometry, Radiometry and Colorimetry	15
255	ANSI/UL/NEMA standard documents for Photometry, Radiometry and Colorimetry	10
256	Batteries for 40 kVA UPS	40
257	Batteries for 5 kVA UPS	16
258	Batteries for 3 kVA UPS	6
259	Sensors for Ophir Energy meter (PAC)	3
260	Photometer heads for LMT photo current meter (PAC)	5
261	Accessories for Bentham monochromator for radiance and irradiance measurement of extended LED sources with upgraded software: a) High precision cosine-corrected transmission diffuser (220-1100 nm)	1
262	b) Field of view limiting optic for use with high precision cosine-corrected transmission diffuser	1
263	c) Input Optic for spectral check	1
264	d) Direct view telescope allowing measurement of spectral radiance in fields of view and at distances in accordance with Photobiological safety standards	1
265	e) CAF2 lens based relay optics between Integrating Sphere and Monochromator	1
266	f) Integrating Sphere with cosine corrected Input Optics (200-2500 nm) including bideirectional slit mount and fibre bundle adapter	1
267	g) CMOS camera based beam profiler	1
268	h) Direct View Telescope	1
269	i) UV grade fused silica fibre bundle (200-1350 nm) 1 meter long 4.0 mm diameter to 10 X 1.25 mm	1
270	j) UV grade fused silica fibre bundle (200-1350 nm) 1 meter long 2.0 mm diameter to 2 X 1.25 mm	1
271	k) Windows application: Software based guide to measurement against Photobiological safety standards	1
272	l) Two axis Motorized stage (X,Y) and manual Z stage to facilitate source alignment in evaluation of lamp Photobiological safety	1
273	General Electronic Components (Metrology/Research Grade) i. Graphic LCD	5
274	ii. 7segment display	10
275	iii. Microcontroller ATmega 32	10
276	iv. Microcontroller ATmega 1284P	10
277	v. LM 7171 Operational Amplifier	10
278	vi. NE 592 Video Amplifier	10
279	vii. RS 232 serial communication wire	5

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280	viii.	Max 3232 serial port to TTL logic converter	5
281	ix.	Digital Multimeter	2
282	x.	20X4 LCD	10
283	xi.	16X2 LCD	10
284	xii.	AVR development board	5
285	xiii.	ARM boad lpxx	2
286	xiv.	ND filter	5
287	xv.	AVR program laoder	5
288	xvi.	Five volt power supply	5
289	xvii.	40 pin IC base	40
290	xviii.	8 pin IC base	40
291	xix.	Arduino Uno	5
292	xx.	Nano Arduino	5
293	xxi.	Voltage Regulator (LM7805)	1
294	xxii.	Voltage Regulator (LM7905)	1
295	xxiii.	Instrument amplifier (INA114)	10
296	xxiv.	Multi resistance kit	1
297	xxv.	Multi capacitance kit	1
298	xxvi.	Bridge Rectifier (BR04)	5
299	xxvii.	LM 35 Temperature sensor	5
300	xxviii.	Light Sensor	5
301	xxix.	Humidity Sensor	5
302	xxx.	Connecting wire(male)	2
303	xxxi.	Connecting wire(female)	2
304	xxxii.	Connecting wire(male female end both)	2
305	xxxiii.	Analog to digital convertor( AD7745/AD7746)	10
306	xxxiv.	Digital to analog convertor	10
307	xxxv.	Iron Electrode	10
308	xxxvi.	Aluminium Electrode	10
309	xxxvii.	I2C module	10
310	xxxviii.	Power cord	10
311	xxxix.	Variable Power supply( ±15V)	2
312	xl.	5V DC adapter	5
313	xli.	3.3V DC adapter	5
314	xlii.	-5V to +3.3V AMS1117 chip adaptor board	5
315	xliii.	Multimeter chargeable battery(9V)	10
316	xliv.	Small drill machine	2
317	xlv.	10 to 6 pin converter	10
318	xlvi.	Potentiometer (5K)	20
319	xlvii.	Potentiometer (10K)	20
320	xlviii.	Potentiometer (1K)	20
321	xlix.	Soldering iron	2
322	l.	Soldering iron with temperature control	2
323	li.	Soldering wire	5
324	lii.	Soldering wax/flux	5

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325	l iii.	De-soldering pump	2
326	l iv.	Solder iron stand	5
327	l v.	Buzzer	5
328	l vi.	Push pull button(Micro button)	1
329	l vii.	PCB (0 size)	30
330	l viii.	Diode (7.5A to 300mA)	10
331	l ix.	NPN transistor (BC547)	20
332	l x.	Single Core wire(Red)	1
333	l xi.	Single Core wire(Green)	1
334	l xii.	Single Core wire(Blue)	1
335	l xiii.	Glue gun	2
336	l xiv.	Plastic cable ties	1
337	l xv.	Raspberry pi	2
338	l xvi.	Breadboard	10
339	l xvii.	Header strip	20
340	l xviii.	ESP 8266 Module(Wi-Fi)	5
341	l xix.	NRF 24 Module	10
342		BNC connector	20
343	a)	Computer Consumables a) RAM	20
344	b)	Hard Drive	5
345	c)	External Hard Drive	3
346	d)	USB/OTG Pen Drive	6
347	e)	Key board	20
348	f)	Mouse	20
349	g)	Printer Cartridges	10
350	h)	Computer Maintenance & Repair	20
351	i)	Printer cartridge refill and maintenance	40
352		Lab Consumables Tissue box	20
353		Slippers	10
354		Lab Coats	10
355		Acetone 500 ml	10
356		Iso Propyl Alchohol 500 ml	10
357		Consumables tissue	2 box
358		slippers	5 pair
359		Iso Propyle	5
360		Micropippet hanger	3
361		Micropipette tips	1 Pkt
362		Micropipette filler	5
363		Ethanol	5 bottle
364		Computer Workstation (OS: Linux, 6/8 core, RAM≥ 32 GB), Hard Drive ≥1 TB Monitor (27" inch, LED), wireless keyboard & mouse,	1
365		Laser Printer	1
366		UPS (1 kVA)	1
367	1.	Chemicals Barium Carbonate (99 %,)	500g
368	2.	Strontium Carbonate (99.9%)	100 gm

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369	3. TiO <sub>2</sub> (99.9%),	100gm
370	4. Titanium isopropoxide (99.999%),	25 ml
371	5. Lithium Hydroxide (99%)	100 gm
372	6. Zinc Acetate dihydrate (99%)	500 gm
373	7. 2-Propanol	500 ml
374	8. Urea	500 gm
375	9. Glacial acetic acid (99%)	1 L
376	10. Choline Chloride etc.	5gm
377	11. Pd Powder (99.995 %)	5gm
378	12. Graphite Powder (99.99%)	500 gm
379	Substrates 1. Si (10 x 10 cm <sup>2</sup> )	10
380	2. LaAlO <sub>3</sub> (10 x 10 cm <sup>2</sup> )	2
381	3. SrTiO <sub>3</sub> (10 x 10 cm <sup>2</sup> )	2
382	4. Indium doped SnO <sub>2</sub> (10 x 10 cm <sup>2</sup> )	2
383	Al <sub>2</sub> O <sub>3</sub> (10 x 10 cm <sup>2</sup> )	2
384	1. Computer Internal Hard disk (1 TB)	1
385	2. Computer speaker,	1
386	3. Pen Drive (32 GB)	1
387	4. Antivirus	1
388	Glassware & Lab ware 1. (Beaker (250 ml)	5
389	2. Weighing bottle (5 ml)	5
390	3. Burette (50 ml)	1
391	4. Measuring flask (5ml) , (10 ml)	2
392	5. Standard flask (25 ml), (50 ml)	2
393	6. Pipette (5 ml), (10 ml)	2
394	7. Test tube stand (12 x 12)	1
395	8. Spatula (6" spoon type) , 6 " (micro one side spoon)	10
396	9. Silica crucible with lid (15 ml)	5
397	10. Tripod stand (6" x 4")	1
398	11. High form crucible (10 ml) (15 ml)	20
399	12. Nitrile gloves(superior, 100/pack)	5 Pack
400	13. Tissue paper	20 Roll
401	14. Specimen tube (25 x 50)	2 pack
402	15. Micro slides, 20/pack)	2 pack
403	16. Vacuum Desiccators 200mm Dia	3
404	17. Spray Bottle , capacity 500-750 ml	2
405	18. Volumetric Flask 25ml	2
406	19. Volumetric Flask 50ml	2
407	20. Volumetric Flask 100ml	2
408	21. Volumetric Pipette 5ml	2
409	Volumetric Flask 10ml	2
410	Stationery	1
411	Symposia/Seminar/Workshop (P04)	1
412	Repair of instruments	1

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413	Optics: Lens	10
414	Mirrors	10
415	wave plates	4
416	Magnetics Mounts	10
417	Base and base plate	10
418	Post and post holder	10
419	Lab consuambles: Nitrile gloves,	1 pkt
420	Cleaning reagents : Methannols,	5 liter
421	ISo propyle	5 liter
422	Whatmann Tissue paper.	2 pkt
423	Hand Air blower for cleaning optics	1 (one)
424	Screw driver set	One set
425	L-N Key set	One set
426	Extension boards	3
427	Centrifuge system with accessories	2
428	Reading Telescope (10x), digital camera with display and mounting accessories, 3 nos each	3
429	Computer (i3/i5, 4 GB RAM, 1 TB Hard disk), Monitor (LED 19"), Laser Printer (Black), Mouse & keyboards, UPS (1KVA), 2 nos each	2 set
430	TPW Cell, 2 nos	2
431	Capsule SPRT ( $R_{TPW} = 25.5 \Omega$ )	1
432	Hot Plate (upto 350 °C) with Magnetic stirrer	1
433	Digital Hygrometer (20 to 95 % RH), 2 nos	2
434	Refrigerator (165 L), 1 nos	1
435	Low Temperature Dry Block Calibrator (-40 °C to 50 °C)	1
436	Fabrication of LIGT and Digital clinical thermometer calibration kit	4
437	IEEE 488 - USB Cable, 2 Nos	2
438	Silicon Oil for liquid temperature bath	20 L
439	Gas (Ar & Nitrogen, 5 N)	5
440	Nitrile gloves -superior regular	4
441	Stand (retort	2
442	Ice container	3
443	Glass vacuum flask	3
444	Printer Toner Cartridges	4
445	Fabrications of component parts, Job works,	2
446	Al square Pipes,	(30mmx30mmx10m)
447	connectors,	50
448	gas cylinders,	2
449	GI Sheets,	2500mmx1200mmx1mm
450	NRV	50
451	Rubber fitting pipes	20 m
452	Paint	2kg

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## NPL Project Procurement List 2019-20 as on 6th Dec.

453	Laser Printer	2
454	Camera (5Megapixels or better)	15
455	Extension Board	10
456	First-aid Box	2
457	Index Files	40
458	Electronic components wires connecters (16, 6 amp)	100 each
459	Capacitor	
460	Inductor	
461	Op-Amp	
462	Instrumentation Amplifier	
463	ICs	
464	Resistance's	
465	Transformers	
466	Rectifiers	
467	Trim pots	
468	Relimate connectors	
469	PCB	20
470	SMPS power supply	30
471	Batteries 9V/6V	5 each
472	DC motors	10
473	Wires	50 m
474	Soldering wire	100 g
475	Soldering iron	5
476	Microcontrollers	10
477	Signal generator module	5
478	LCD displays	15
479	Potentiometers 10 turn	10
480	Crystals	25
481	Gem clips	10
482	Drawing Files	20
483	Registers	10
484	Lab Aprons	10
485	Lab Gloves	10
486	Lab Sleepers	15
487	O -Ring for CVV	1
488	SS Tubes 1/4" -10 m	10 m
489	SS Rod Diameter 1/4"	1 m each
490	SS Rod Diameter 1/2"	1 m each
491	SS Rod Diameter 3/4"	1 m each
492	SS Rod Diameter 1"	1 m each
493	SS Rod Diameter 1 1/2"	1 m each
494	SS Rod Diameter 1 1/4"	1 m each
495	SS Rod Diameter 2"	1 m each
496	Teflon Rod Diameter 1/2"	1 m each
497	Teflon Rod Diameter 3/4"	1 m each

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## NPL Project Procurement List 2019-20 as on 6th Dec.

498	Teflon Rod Diameter 1"	1 m each
499	Shoe Dispenser	5
500	Job work of fabrication of high pressure accessories	2
501	Transducer cell upto 500 MPa	2
502	Rb frequency standard	2
503	power supply	2
504	minor equipments	4
505	Electrical and electronics components, ICs and computer components.	500
506	Printed circuit board	45
507	vacuum grade detergent, chemicals	4 litre
508	optics, optom-mechanics, fibers etc	10
509	gasket, rubber, pipes and other consumables	100
510	Ethanol( Purity >= 99%)	50 liter
511	Acetone( Purity>99%)	100 liter
512	Ferrocene( Purity >= 98%)	2 kg
513	Ortho Phosphoric acid (Purity - Min 85% by mass)	200 liter
514	Sulfuric acid (Reagent 95-98%)	50 liter
515	Thiophene (>99%)	500 ml
516	Polycarbonate (Injection moulding grade)	25 kg
517	TETA Hardener (Assay Isomer>= 95%)	5 liter
518	Silver paste (>=75%,)( 0.3μohm-cm)	5x5 g
519	Polypropylene (Injection Moulding Grade)	25 kg
520	Low density polyethylene ( Injection Moulding Grade)	25 kg
521	Epoxy Resin (LY556)	20 kg
522	Releasing agent (Waxpol)	10X200 ml
523	Sodium thiosulfate (Assay >= 99%)	1 kg
524	Sodium carbonate (Assay >= 99%)	5X200 ml
525	Iodine (Purity >= 99%)	1 kg
526	Starch (Purity >= 99%)	1 kg
527	Silver Nitrate (>= 99%)	50 gram
528	Sodium citrate (>= 99%)	2 kg
529	Gold chloride (Assay>=99%)	500 mg
530	Oxalic acid (Purity >=99%)	0.5 kg
531	Potassium Tetrabromaurate (>= 99%)	10 gram
532	Polydimethylsiloxane (Silicone Elastomer) (Silicone Elastomer)	2 kg
533	DMF (Purity >= 99%)	20 liter
534	Methanol (Purity >= 99%)	20 liter
535	Cubic boron nitride (CBN) (Purity >= 99%)	5 kg
536	Hexagonal boron nitride (HBN) (Purity >= 99%)	2 kg
537	Silicon Carbide (Purity >= 99%)	10 kg
538	Aluminium chloride (AR)	500g
539	Sodium borohydride (LR)	500 g
540	Quinoline (Purity >99.5%)	20x500 ml
541	Toluene (Purity>= 99.5%)	20X2.5L

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## NPL Project Procurement List 2019-20 as on 6th Dec.

542	Acetic acid (>= 99%)	5 liter
543	Phenolic resin (Phenolic resin -resol type)	25 kg
544	Phenolic resin (Novalac) (Phenolic resin - Novalac type)	25 kg
545	Platinum chloride (99.90%)	5 g
546	Epoxy Hardener ( HY5200)	5 kg
547	Trifluoracetic acid (Analytic grade)	500 ml
548	Ethylene diamine tetracetic acid (EDTA) (AR )	200
549	Poly vinyl alcohol (cold) (MW-80,000-1,25,000)	500 g
550	NMP (1-methyl-2-pyrrolidinone) anhydrous (Anhydrous, 99.35% pure)	2 litre
551	Melachite green (dye) (99%)	25g
552	PYR14TFSI (1-Butyl-1-methylpyrrolidinium bis (trifluoromethylsulfonyl)imide) (>99% <500 ppm H <sub>2</sub> O)	2 x 25 g
553	Propylene carbonate (PC) (anhydrous,99.7%)	2
554	Ethylene carbonate (EC) (Anhydrous ,99%)	2
555	Lithium perchlorate –battery grade (LiClO <sub>4</sub> ) (Dry 99.99%)	2
556	Potassium hydroxide (95%)	2
557	Sodium sulphate, (anhydrous,>99.0%)	1
558	Polyaniline (PANI) (MW>15000)	2
559	Sodium Arsenate (>99.9% analytic grade)	2
560	Expandable Graphite (Expansion Ratio >250:1) (Particle size >=50 mesh )	2.5 kg
561	PEDOT:PSS (3-4 % in H <sub>2</sub> O)	4
562	Polystyrene (PS) (Molecular weight >190000)	3
563	Glycerol (AR)	1
564	Calcium chloride (AR)	500 g
565	Barium chloride (AR)	500 g
566	Strontium chloride (AR)	500 g
567	Silicon powder, -325mesh (metals basis) (Purity(99.999%))	200g
568	Silicon powder, -100mesh (Grade: metals basis) (Purity(99.9%))	300g
569	Silicon lump, 10cm (3.9in) & down (Grade: metals basis) (Purity(98.4%))	1kg
570	Silicon lump, 15cm (5.9in) & down (Grade: metals basis) (Purity(99.999%))	200g
571	Chromium pieces, 3-8mm (0.1- 0.31in) [Metals basis] (Purity(99.99%))	250g
572	Manganese powder, -325 mesh (Metals basis) (Purity(99.3%))	250g
573	Bismuth powder, -200 mesh (Grade: metals basis) (Purity(99.999%))	100g
574	Bismuth pieces, 10cm (3.9in) & down (Grade: metals basis) (Purity(99.99%))	500g
575	Iron granules, 1-2mm (0.04-0.08in), (Grade: metals basis) (Purity(99.98%))	500g

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## NPL Project Procurement List 2019-20 as on 6th Dec.

576	Titanium granule (Grade: metals basis excluding Na and K) (Purity(99.99%))	500g
577	Germanium pieces, 3.2mm (0.125in) and down, (Grade: metals basis) (Purity(99.999%))	10g
578	Niobium pieces (Grade: metals basis) (Purity(99.8%))	500g
579	Nickel powder, -325 mesh (Grade: metals basis) (Purity(99.8%))	500g
580	Boron carbide (Purity(99 +%))	100g
581	Zirconium foil, 0.25mm thick, (size125mmx500mm) (Purity(99.8%))	10 Nos.
582	Paraffin oil (Nujol) (IR grade)	10
584	Orion ion plus Filling solution (Optimum Results A) (Fill solution for Fluoride ISE.)	300 ml
585	TISAB 3 (Type - 3)	950 ml
586	Terephthalic Acid (98% purity)	500 gm
587	Trimesic Acid (95% purity)	200 gm
588	Cobalt Nitrate Hexahydrate (ACS,Reag. Ph Eur (>99%))	250 gm
589	Poly-vinylidene Fluoride (PVDF) powder (average Mw ~534,000)	100 gm
590	2-methyl Imidazole (>98% purity)	250 gm
591	Potassium Ferricyanide (ACS,Reag. Ph Eur (>99%))	500 gm
592	Zirconium (IV) Chloride (AR Grade)	500 gm
593	Copper Acetate Mono hydrate (ACS Reagent Grade (>98%))	200 gm
594	Polyvinyl Alcohol (PVA) (Mw 85000-124000, 99% hydrolyzed)	250 gm
595	Sodium Hypophosphite Monohydrate (>99%)	500 gm
596	Sodium Sulfate (AR >99%)	500 gm
597	Potassium Hydroxide Pellets/Powder (85% purity)	1 Kg
598	3,4-Ethylenedioxy thiophene (EDOT) (97% Purity)	100 ml or 10 gm
599	Sodium hydroxide (95% purity)	1 Kg
600	Lignin(kraft) (Low sulfonate content)	2 Kg
601	Lignin (Hardwood organosolv)	2 Kg
602	Al2O3 substrate (5x5x0.5mm )	50 Nos.
603	Silicon N-type substrate (5x5x0.5mm )	50 Nos.
604	Silicon P-type substrate (5x5x0.5mm )	50 Nos.
605	Polyimide Tape (1", 36yds.)	01 No.
606	Membrane Film Boxes (28x28x10mm)	50 Nos.
607	Argon, 7 m3 (99.999%)	50 cylinders
608	Hydrogen, 7 m3 (99.999%)	5 cylinders
609	Nitrogen, 7 m3 (99.999%)	100 cylinders
610	Acetylene (99.6%)	4 cylinders
611	Methane 1.75 m3 (99.999%)	4 cylinders
612	Helium , 10 m3 (99.999%)	15 cylinders
613	Oxygen , 7 m3 (99.999%)	10 cylinders
614	Air , 7 m3 (99.999%)	15 cylinders
615	Quartz tube (135mm Diameter) ( Quartz tube of 135 mm OD and 2400 mm length )	2 tubes

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## NPL Project Procurement List 2019-20 as on 6th Dec.

616	Fabrication of Quartz tube (80mm Diameter) with gas inlet closing cups on both sides ( Quartz tube of 80 mm OD and 1000 mm length )	2 tubes
617	Recrystallize Alumina tubes(100mm) ( Recrystallized high temperature resistant (upto 1700 °C) alumina tubes (purity ≥99.5%) of length 1000 mm and outer diameter 100 mm )	10 tubes
618	Quartz tube(50 mm) ( Quartz tube of 50 mm OD and 1500 mm length )	10 tubes
619	Aramid Fabric ( Kevlar 29 and Kevlar 49 )	50 meter each
620	UHMWPE sheet ( SB50 )	50 meter
621	Nylon cloth ( 200 mesh )	10 meter
622	Carbon fiber cloth ( T300 )	50 meter
623	Gloves ( Nitrile gloves )	50 packets
624	Mask ( Surgical mask, Disposable respirator mask, 3M full face respirator reusable mask with cartridges )	20 + 15 packets
625	High temperature resistant gloves ( Kevlar leather heat resistant gloves, 12-14inch )	20 pairs
626	Tissue Paper ( Tissue Paper )	250 rolls
627	Plastic bottle and wass bottle with tip ( 500 ml, 100 ml, 500 ml )	50 each
628	Vials ( 2ml, 5ml, 10ml )	100 nos each
629	Disposable syringe needle cutter and destroyer ( Disposable syringe needle cutter and destroyer )	1 no.
630	Borosil Glass beakers with air tight lid ( 25 ml,50 ml, 100 mL )	20 each
631	Si/SiO <sub>2</sub> wafers (Oxide: 300 nm) (4 inch:100, 111) ( Electronic grade )	10 wafers each
632	Si wafers (4 inch:100, 111) ( Electronic grade )	10 wafers each
633	M-seal ( M-seal )	20 nos
634	Mist maker ( Mist Maker )	10 nos
635	Vacuum grease ( Vacuum grease )	50
636	Silicone O-rings ( Silicone O-rings of different sizes )	20 nos
637	Silicone Pipe ( 10 mm , 8 mm Dia )	25 meter each
638	Silicone sheet ( Silicone sheet )	10 meter
639	Rotameters ( Rotameters for gas flow measurement )	10 nos
640	Football bladders ( Football bladders for carbon growth )	2 nos
641	TEM grids ( Copper grids with carbon leacy film )	250 nos (25x10)
642	Cotton Roll ( Surgical )	20 Nos
643	Old dhoti ( Cotton dhoti )	50 nos
644	Thermocouples ( Measurement upto 1000 degree C )	10 nos
645	Copper foil ( 99.8% pure & 30x 150 Sqcm )	2 nos+2 nos
646	Diamond cutter blades ( 152 x 0.5 mm )	4 nos
647	Teflon Tapes ( Teflon Tapes )	20 packets
648	Sample Box ( Sample Box of different sizes )	1000 nos
649	Porcelain crucibles ( 25 ml, 50 ml )	20 each + 3 each

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## NPL Project Procurement List 2019-20 as on 6th Dec.

650	Glass Reference electrode ( Ag/AgCl, General purpose )	2 nos + 1nos
651	Platinum wire counter electrode ( 99.99% purity )	2 nos+ 1 nos
652	Recrystalline alumina boat, 7ml ( >99.5% recrystallized )	20 nos
653	Recrystalline alumina boat, 15ml ( >99.5% recrystallized )	20 nos+ 5 nos.
654	Recrystalline alumina boat, 40ml ( >99.5% recrystallized )	20 no
655	Alumina crucible, 10 ml ( >99.5% recrystallized )	20 nos
656	Gooch Crucible ( 50ml, Grade 3/, Grade 4/ Grade 5 )	100 nos
657	Gold sputtering Target ( 99.99% Metal basis )	2 Nos
658	Graphite Spray ( Surface resistivity 1000-2000 ohm )	2 Nos
659	High strength graphite ( Dia 10, 12.7,15 mm Density~1.8 g/cc, strength 150 MPa )	25 Nos
660	Double side Carbon Tape ( Conductive 8 mm width )	2 Nos
661	Silver Paste ( 73% silver )	4 Nos
662	Tungsten Electrode complete ( Tungsten Electrode )	8 Nos
663	Metal Bellows ( Metal Bellows )	6 Nos
664	Protection Glass ( Ø 95mm x 2.5mm x 40mm )	4 Nos
665	Vacuum observation Window ( Ø 140mm x 3mm x 60mm )	2 Nos
666	Graphite paper ( SPS grade )	10 Nos
667	XRD Sample Holder ( Size: 30mm x 30mm(0.1-0.5mm depth) )	8 Nos
668	DSC Platinum Crucible with Lid ( Ø 6.8 mm, 85 µl (OPN: 399.205) )	10 Nos
669	Diamond paste -polishing grade ( Fine grade )	20 Nos
670	Emery paper ( 150, 400, 600,1000,1500 grade )	300 Nos each
671	M.S. Chamber ( M.S. Inert Chamber of size: (5.5ft x 2.5ft x 2.5ft) )	One
672	Flanges for Quartz tubes ( Flanges for Quartz tubes made of SS )	6 nos
673	S.S Tubing ( 1/4" S.S 316 Tubing )	50 ft
674	S.S. T ( 1/4" S.S. T )	10 Nos
675	S.S. Four Way ( 1/4" S.S. Four Way )	10 Nos
676	S.S. union ( 1/4" S.S. union )	10 Nos
677	Nut ( 1/4" S.S. Nut )	20 Nos
678	Front & Back Ferrule ( 1/4" S.S. front & Back Ferrule )	80 Nos
679	Pipe White ( 6mm Pipe White )	100 meter
680	Push pull fitting ( 6mm push pull fitting )	10 Nos
681	Push pull T ( 6mm push pull T )	10 Nos
682	Push pull four way ( 6mm push pull four way )	10 Nos
683	Push pull union ( 6mm push pull union )	10 Nos
684	Tube Cutter ( Tube Cutter )	1 No
685	Tube Bender ( Tube Bender )	1 No
686	Gas regulators ( For Nitrogen , argon, hydrogen )	12 nos (5 nitrogen, 5 argon, 2 hydrogen)
687	Millipore filter pack ( pore size: 0.1, 0.22, 0.45 µm )	100 each (Dia: 25, 47 mm)
688	Titanium Mesh ( 100x100mm, aperture 0.19mm, wire diameter 0.23mm )	10 Nos
689	HP Laser Jet Printer Cartridge ( CE278A )	10 Nos

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690	HP Laser Jet Cartridge ( CC388AC )	4 Nos
691	Hard Disk ( 2 TB )	2 Nos
692	Pen Drive ( 64 GB )	5 Nos
693	Repairing ( Repairing of 3 zone furnace )	1 no
694	Ballistic Testing ( Ballistic Testing on Composite Material Sample )	50 samples
695	Cutter ( Polymeric material cutter )	2 no
696	HP Laser Jet Cartridge ( 12A )	2 no.
697	Scissor ( For fiber cutting )	2 no.
698	Aluminium Foil ( 99.8% pure & 30x 150 Sqcm )	2 nos
699	Porcelain Boat ( 5 inch )	5 nos
700	Extension board ( 3-4 plugs based )	10 nos
701	Teflon lined stainless steel autoclave (Hydrothermal Bomb) ( 200 ml, 100ml, 50 ml )	3 each
702	Fabrication of SS reactor(Size 120x75x600 mm, sheet thickness 3-4mm and Size 135x135x600mm, sheet thickness)	1 each
703	Repairing of softening point apparatus ( Mettler Toledo make )	1
704	Fabrication of vacuum distillation assembly made of SS condenser, receiving flask, stirring, temperature controller. ( 5L )	1
705	Fabrication of Melt spinning assembly ( Fabrication of complete melt spinning assembly of UHMWPE polymer )	1
706	Soxhlet extraction assembly ( 3L )	2
707	Cyclohexane ( 5 L High Purity )	5
708	Spin coater repair ( )	1
709	Pirani guage ( Up to 10-3 mbar )	1
710	Cartridge ( HP 88A Black Laser Jet Toner Cartridge CC388A )	1
711	Cartridge ( HP CP1025 Cartridge CE 310 A )	1
712	Cartridge ( HP CP1025 Cartridge CE 311 A )	1
713	Cartridge ( HP CP1025 Cartridge CE 312 A )	1
714	Cartridge ( HP CP1025 Cartridge CE 313 A )	1
715	Anti Virus ( Anti Virus )	For 10 Users
716	Repairing ( Repairing of Induction Furnace )	1
717	Repairing ( Repairing of Autoclave )	1
718	Computer Mouse ( Computer mouse )	20
719	Computer Keyboard ( Computer Keyboard )	10
720	Motors ( Motors 1 HP )	5
721	Temperature Indicators ( Temperature Indicators )	10
722	File Covers ( Plastic File Covers )	500
723	CD ( CD )	500
724	CD Cover ( CD Cover )	500
725	DVD ( DVD )	200
726	DVD Cover ( DVD Cover )	200
727	Transparency Sheet ( PET Transparency Sheet )	500

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## NPL Project Procurement List 2019-20 as on 6th Dec.

728	Glossy Paper ( Glossy Paper (A4 size) )	500
729	UPS Batteries ( 12 Volt UPS Batteries )	12
730	Visiting Cards ( Visiting Cards for Scientists )	2000
731	Stamps ( Stamps )	10
732	Tool Kit ( Tool Kit (Mechanical Tools) )	5 Kits
733	Hand Grinder ( Portable Electric Hand Grinder )	2 Nos+1 No
734	Multimeters ( Multimeters )	5 Nos
735	Cartridges ( HP Laserjet M1005 MFP, Cartridge Q2612AC )	6 Nos
736	AMC ( AMC of TGA and DSC )	2
737	AMC ( AMC of Raman Spectroscopy )	1
738	LFA InSb Detector ( LFA PURPOSE )	1
739	LFA Thermocouple S-type ( LFA PURPOSE )	1
740	LFA LAMP ( LFA PURPOSE )	1
741	LFA SiC Sample Holder ( LFA PURPOSE )	1
742	LFA Graphite/12.7 mm ( LFA PURPOSE )	1
743	Turbomolecular Pump ( FESEM purpose )	1
744	Control Unit VDH-R201 (11501) /SEEBIT ( FESEM purpose )	1
745	Flow Sensor FHKUC 56, 10mm /DIGMESA ( FESEM purpose )	1
746	Dry scroll Pump ( FESEM purpose )	1
747	Silencer ( FESEM purpose )	1
748	Tip Seal Kit ( FESEM purpose )	1
749	AMC ( AMC OF FESEM )	1
750	Repair UPS ( LFA purpose )	2
751	Spares of RV3 Vacuum pump ( 3 millibar and oil type )	2
752	Repairing of Vacuum Pump ( 3 millibar and oil type )	2
753	Spares of UPS ( 15 kva ups )	2
754	Printer Cartridge ( CC388A )	2
755	Printer Cartridge ( CF 400A, CF 401A, CF 402A, CF 403 A )	2 Set
756	Inverter PCB & CNTL ( UPS spares )	01 SET
757	730937 Sample holder, disposable, oven, boron nitride ( Vibrating Sample Magnetometer (VSM) )	04 No.
758	Fabrication of three piece Die Mould for making recurve carbon fiber polymer composite.	1
759	Carbon fibre or carbon fiber fabric	10 kg or 50 m <sup>2</sup>
760	Glass fibre	20 kg or 50 m <sup>2</sup>
761	Epoxy resin LY556 and Hardener (curing agent) TETA	20kg @ 5lt
762	Syntactic foam strips of 40 mm 500 mm	50
763	Hot plate cum stirrer	1
764	Optical mask	1
765	SiO <sub>2</sub> target	1
766	Lanthanum oxide (La <sub>2</sub> O <sub>3</sub> ) 99.9%	250g*1
767	Selenium(IV)Oxide (SeO <sub>2</sub> )99.4%	100g*1
768	Chromium(VI)oxide(CrO <sub>3</sub> )99%	100g*1
769	Chromium(III) oxide(Cr <sub>2</sub> O <sub>3</sub> )99.97%	25g*1

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770	Sodium chloride (NaCl) 99%	500g*1
771	Potassium Chloride (KCl) 99%	1000g *1
772	Sodium carbonate(Na <sub>2</sub> CO <sub>3</sub> ),anhydr 99.5%	50g*2
773	Potassium carbonate (K <sub>2</sub> CO <sub>3</sub> )99%	500g*1
774	Ruthenium(III)Chloride (RuCl <sub>3</sub> ) 47.7%	10g*1
775	Lithium carbonate (Li <sub>2</sub> CO <sub>3</sub> ) 99%	500g*1
776	Lithium hydroxide (LiOH),anhydrous 98%	25gs*3
777	Sodium hydroxide (NaOH) 98%	500g*1
778	Potassium hydroxide (KOH) 85%	500g*1
779	Nitric Acid 1N	1L*1
780	Hydrochloric Acid 0.5M sol.	500ml*1
781	Methanol 99%	2500ml*1
782	Lanthanum Chloride 99.9%	25g*1
783	Palladium Powder 99.95% -200 mesh	5g*1
784	Potassium nitrate(KNO <sub>3</sub> ) 99%	100g*1
785	Ruthenium powder 99.9% 325 mesh	10gm*1
786	Scandium(III) oxide,99.998% (metals basis), REM 50ppm max	5g*1
787	KTiO <sub>3</sub> (100) Substrate	2
788	Gas Butane gas canister	10
789	Miscellaneous Spatula	10
790	Gloves (large)	5pck
791	High temperature Gloves	1pair
792	Mask	1 box
793	Safety glass	5
794	Welding glasses	2
795	Glass cutting tool	1
796	Soldering iron	1
797	Vacuum pipes	10feet
798	Gas Pipes	5 feet
799	SS thin wall tube	3mtr.
800	OHFC Cooper rod	2kg
801	OHFC Copper pipe	2mtr
802	Platinum Wire 0.5mm	2 mtr
803	Copper Wire	
804	Manganin wire	5 mtr
805	Tissue paper	100roles
806	Nitrile gloves (M & L)	10 pck
807	Quartz Tubes	20
808	Sample Boxes	100
809	Weighting Paper	10 box
810	Tweezers	20
811	Tool Box	1
812	First Aid Box	1
813	Butane micro torch	1
814	Computer 22 inch full HD LCD monitor	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

815	R-T Sample Holder Cup Etch651-450	05 No.
816	Repair of HALL Measurement Unit	1
817	Kelf- Liquid upper & Bottom Cup 651-450	2
818	High Temperature Sample Cup Boron Nitride 651-946	4
819	High Temperature Sample tail EM10 Oven - 651946	4
820	High Temperature Sample rod EM10 Oven 651-946	4
821	Room Temperature Sample Rod EM10, Qutz, SM 651-949	2
822	Room Temperature Sample Rod, Qrtz- Mnt, EM10 651-923	4
823	Repairing of furnace	3
824	Repairing of Micro Injection Moulding	1
825	Spares for 3D printer	2
826	UV-Vis-NIR spectrophotometer Repair	1
827	Repair of DC power supply	1
828	Inert gas purifier	2
829	O2, N2, Ar gases	1
830	RF compatible heater	1
831	target conversion set with magnets	1
832	Al target	1
833	SiO2 target	1
834	ZnO with Alumina target	1
835	Heater	2
836	Gas regulators	2
837	Cables for electrical measurements (Traix BNC, MHV, etc)	10
838	LED array	1
839	panel mount voltmeter and ammeter	2
840	Valves	10
841	Cyclohexane	2
842	1,2,4-Trichlorobenzene	2
843	sputter gun	1
844	Chiller	1
845	Tranformer	1
846	Hydroflouric acid	20 bottles
847	KOH	04 Bottle
848	Isopropyl Alcohol	80 bottles
849	Photoresist	01 bottle
850	Photoresist developer	01 bottle
851	AgNO3	02 bottle
852	Fluro surfactant (FS-100)	1
853	Al wire	4
854	Ag wire	4
855	Si wafer	150
856	AM 1.5 G filter	2
857	ZF3000433	1
858	PROG0TOS2	2
859	PROG000S2	2

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## NPL Project Procurement List 2019-20 as on 6th Dec.

860	ZF3000022	1
861	Xenon Lamp, 300W	2
862	Plane mirror for Xenon lamp	2
863	Si photodiode (550 nm)	1
864	Si photo diode (calibration for AM 1.5 G)	1
865	AM 1.5 filter	1
866	Nitrogen cylinder	10
867	Oxygen cylinder	1
868	Nitrogen bank	2 Bank
869	Oxygen cylinder	2
870	Rapid thermal anneal System	1
871	E beam evaporation system	1
872	Sinton lifetime tester	1
873	ALD System	1
874	Quartz tubes and fittings	2
875	Acetonitrile anhydrous	2
876	Diethyl sulfide	1
877	Lead(II) iodide 99.999% trace metals basis	2
878	P3HT	2
879	pcbm	2
880	Chlorobenzene Anhydrous	2
881	Diethyl sulfide	2
882	FTO Glass Plate	10
883	SILVR SHOT 1-7MM (0.04-0.1IN) 99.999%	
884	Universal Testing Machines with low capacity and high capacity	1
885	Contact Angle Measurement System	1
886	Dynamic mechanical analyser	1
887	FESEM with WDS, electron beam lithography	1
888	X Ray Diffraction with Fiber Assembly	1
889	High Temperature Powder XRD	1
890	X-ray fluorescence Spectrometer	1
891	Thermo Gravimetric Analysis (TGA) with auto sampler	1
892	Differential Scanning Calorimeter	1
893	Thermal Mechanical Analyzer	1
894	Optical Microscope	1
895	Precise Microbalance	1
896	Impact Tester	1
897	Particle Size Analyzer	1
898	Vickers Micro-hardness tester	1
899	Thermal Conductivity Measurement	1
900	Inductivity Coupled Plasma optical emission Spectrometry(ICP-OES)	1
901	Source Meter	1
902	Soxhlet Automatic Extraction	1
903	Salt Spray	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

904	FTIR	1
905	Xenon Arc Tester, UV Test	1
906	Extensimeter	1
907	UV-vis-NIR	1
908	Gel Permeation Chromatography	1
909	Impedance Spectroscopy	1
910	Current pre-amplifier, wave form generator, Lock-in amplifiers	1
911	Probe Station	1
912	Cryogenic System	1
913	Evaporation System for making Electrodes	1
914	Test Equipment for Combustibility	1
915	Thermal Shock Test Chamber	1
916	Bundesmann Rain Test	1
917	Fungal Resistance Measurement Test Chamber	1
918	Chamber for Chemical Resistance against Acid	1
919	Vector Network Analyser	1
920	Static Charge Decay Meter	1
921	Fatigue Tester	1
922	Inductivity Coupled Plasma Mass Spectrometry(ICP-MS)	1
923	GD MS (Glow discharge mass spectroscopy)	1
924	Microwave digestion 10.00 proposed	1
925	Accessories like UPS, Data Acquisition System, dehumidifier, humidity chamber, gas flow, Mass Flow, Temperature Controllers, high resolution multimeter, mechanical stirrer, hot plates, vacuum oven, refrigerators, defreezers, hydraulic trolleys, Chemical washers, Safety shower cabinet, Vacuum rotary pumps, turbo pumps, DC power supply, other miscellaneous equipments etc.	As per requirement
926	Gas Permability Tester	1
927	Isopropyl Alcohol	50 Litre
928	Aluminum foils	1 each
929	Silica crucibles (basin)	10 each
930	Alumina crucibles with lid (basin)	10 each
931	Quartz cell with PTFE cover	2 pair
932	Micro pipettes	4
933	Repairing of furnace	1
934	Heavy duty grinder	2
935	Designer die-steel plates	2
936	Repairing work	
937	Expandable graphite	20 kg
938	fabrication of quartz reactor with flange	Two set
939	phenolic resin	50 kg
940	reparing of the high tempeature furnace up to 1000C	two

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## NPL Project Procurement List 2019-20 as on 6th Dec.

941	fabrication of die plate	two
942	Gear motor for reactor	one
943	disposal glubs	50 packet
944	Managed Switch with PoE	2
945	Gas Mixing System Panel	1
946	Calibration gas Refilling	9
947	Consumables for thin film deposition; electrical, electronic components; optical components; vacuum components; low temperature components; and general consumables as per requirements	5
948	Inserts for cryogen free low temperature magneto transport measurement system	210
949	Optical; Electrical & Other Components - Femtosecond Pulsed Laser Source; Photodiode Sensors & Accessories for Power and Energy Measurements; Optical Workstation; Laminar Flow Work Bench/Cabinet; Lock-in Amplifier	79.5
950	SNSPD Based Two-Channel Optical Photon Registration Insert for Liquid Helium Cryostat	42
951	Power Supplies for DC Magnetron Sputtering	12
952	Turbo Molecular Pumping System & Accessories	10
953	Consumables for thin film deposition; majorly the expensive single crystal wafers, computer software, general consumables etc. are some to mention.	30
954	Propylene glycol and n-propanol	2.5 Liter Each
955	High purity (99.99 %) Bi2Se3 sputtering target	1
956	High purity (99.9 %) MoS2 sputtering target	1
957	Acetone, n-propanol	5 lit
958	n-propanol	5 lit
959	(i) Power Supply (2 AMP 24volt)	14
960	(ii) Dual DC regulated power Supply	2
961	(ii) Digital multimeter with LCR	5
962	Power Amplifier,	3
963	Weather sensor (Temperature upto 60 degree, Humidity 0-100% RH and wind speed /direction upto 70m/s) with data logger, Meteorological software	6
964	All type operating system (Window 10, Window 8, Window XP) and Should also be compatible with SODAR system software with User configure the drive & parameters, file format ".csv" and Configurable 1 min to 24 hour max. Data logger should consist RS485, GPRS, and analog inputs in 4-20ma range.	
965	UPS (1KVA),	3
966	Driver unit (60 Watt 16 Ohm),	5
967	Sound card (16 bit 44.1 Khz),	5
968	Printer ,	6

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## NPL Project Procurement List 2019-20 as on 6th Dec.

969	Sound Level Meter for noise measurement and vibration Meter for the ground vibration measurement before the installation of SODAR system at the site.	1
970	Computer (i7, 8 <sup>th</sup> Generation, 8 GB ram, 1 TB HD),	4
971	Digital Storage Oscilloscope with function Generator (50 Mhz, 4 Channel, with 500uv/V vertical resolution)	2
972	Work Station	2
973	Diaphragm's ,	10
974	Soldering station (with desoldering pump and kit),	2
975	Software's: 1. Windows, 2. MS Office, 3. Antivirus	10 Each
976	Meteorological sensor (wind, humidity and Temperature sensor)(Included in OM)	6
977	Vibration Meter with accelerometer	1
978	Amplifier	6
979	Power supply	2
980	Workstation	1
981	Computers	6
982	UPS	6
983	Job Work: The following items need to be fabricated on job works: 1. Antenna Dish, 2. Tripod Stand, 3. Transducer holder, 4. PCB design, 5. Antenna Frame	6 each
984	Printing Paper	20 RIM
985	File Folder & other Stationary items	100
986	Printer Cartridges	10
987	Power Cables (3 core copper),	500m
988	Coaxial cables (audio coaxial copper),	500m
989	Flexible wires (0.75 mm, 0.5mm),	300m
990	Wires connecters (16 amp and 6 amp),	
991	Capacitor (Electrolytic),	
992	Inductor,	
993	Capacitors (Ceramic),	
994	Op-Amp,	
995	Instrumentation Amplifier,	
996	ICs,	
997	Resistance's,	
998	Transformers	
999	Rectifiers)	
1000	CPVC Pipe '50 mm'	100m
1001	Casing N Caping '50 x 16 mm')	100 m
1002	CPVC Coupler '50 mm'	100 each
1003	CPVC Elbow '50 mm'	100 each
1004	5 Pin Socket '6 Amp'	
1005	5 Pin Socket '16 Amp'	
1006	Switch 1 way '6 Amp'	
1007	Switch 1 way '16 Amp'	(20 Piece each)

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1008	Plug Top '15 Amp'	
1009	Plug Top '5 Amp'	
1010	Electrical wooden Board/Modular	
1011	MCB SPN '20 Amp', MCB Box 2 way)	20 Each
1012	Nail/Screw 1 inch, 1.5 inch and 2 inches	1 Kg
1013	Tool Box	2
1014	Hammer Drill Machine	2
1015	Drill Bit	10
1016	U-Clip Nail '50 mm'	1000
1017	IoT Module with cloud	10
1018	Microscope with magnifier	1
1019	Lamp	1
1020	Electrical Insulation Pad and safety kit	2
1021	Secondary Time Scale Equipment (based on following items) - Atomic Clocks and accessories, 2. Measurement system may consist of Micro phase stepper / Real Time, Atomic Clock Combiner, Time Interval Counter, Frequency Comparator, Time & Frequency Transfer GNSS Receivers, Computers and accessories, Servers and accessories, Racks and accessories, Router/Switches and accessories, Frequency Distribution Amplifier, Pulse Distribution Unit, High Frequency Switch.	5
1022	Dissemination system equipment consisting of-  NTP servers and accessories, NTP servers and accessories	5
1023	Networking system equipment- Work stations and accessories, Router/Switches and accessories, Data Security / Unified Thread Management (UTM) and accessories	5
1024	Minor Equipment, Office and Computer Equipment	5
1025	Primary Time Scale Equipment For Disaster Recovery Centre consisting of- 1. Atomic Clocks / Active Hydrogen Masers, etc. and accessories; 2. Measurement system may consist of Micro phase stepper / Real Time Atomic Clock Combiner, Time Interval Counter, Frequency Comparator, Time & Frequency Transfer GNSS Receivers, Computers and accessories, Servers and accessories, Racks and accessories, Router/Switches and accessories, Frequency Distribution Amplifier, Pulse Distribution Unit , High Frequency Switch. , Software and Control Algorithm	1
1026	Time Transfer/ Dissemination system equipment for Disaster Recovery Centre - Two-way satellite time transfer equipment, NTP servers and accessories	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1027	Networking system equipment for Disaster Recovery Centre - Work stations and accessories, Router/Switches and accessories, Unified Thread Management (UTM) and accessories	1
1028	Minor Equipment, Office and Computer Equipment for Disaster Recovery Centre	1
1029	GNSS receivers and accessories (Receivers, receiver boards & evaluation kit , antennas & cables) for CSIR-NPL	1
1030	Laboratory Racks and cabins for CSIR-NPL	1
1031	Laboratory Tables and chairs for CSIR-NPL	1
1032	Office Equipment and accessories for CSIR-NPL	1
1033	Computer equipment and related items (computer, Laptops, servers, Printers, Workstations, Switch routers, MFD) for CSIR-NPL	1
1034	LAN/WAN equipment and accessories, data security/UTM and related accessories for CSIR-NPL	1
1035	Major software (Network/ elements Management software, etc.) for CSIR-NPL	1
1036	Works and Services – (UPS Batteries and accessories, digging, laying and splicing of optical fibre cable, Data logger with sensors for environmental control) for CSIR-NPL laying and splicing of optical fibre cable) for CSIR-NPL	1
1037	Furniture, fittings and related items for CSIR-NPL	1
1038	Laboratory Job work, Maintenance of Equipment, Audio-visual and Meeting expenses, Computer Software, Computer Consumables cables and connectors, Optical Fibre, connectors, and accessories, Other consumable items, Electronic accessories, Printing machine, Battery and electrical accessories, Replacement of Spare part of equipment, Staplers, label printer, and other minor components & items	1
1039	Charges relating to organisation of Meetings/Seminars/Workshops/Conference, Training Course, Registration and Training fee, Minor Job work, Licence and fees, Honorarium to consultants, Honorarium to Experts, Honorarium to TSC members, Poster Printing charges/exhibition arrangements, Internet/Telephone/Transponder charges, Web charges/ Web development fee, Books and Standards	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1040	Laboratory Job work, Maintenance of Equipment, Audio-visual and Meeting expenses, Computer Software, Computer Consumables, Other consumable items, Battery and electrical accessories, Replacement of Spare part of equipment	1
1041	Chemicals like Chromium (III) oxide 99.999%, Barium oxide etc	As per requirement
1042	Contingency items like file, folders, Pin board etc-	As per requirement
1043	Almirah ( For chemical storage)-.	2
1044	Digital Multimeter-	1
1045	Digital Rheometer	1
1046	ITO substrate	2 sheet
1047	Hexane	As per requirement
1048	Octylamine	As per requirement
1049	Cesium carbonate	As per requirement
1050	3-aminopropyl triethoxysilane	As per requirement
1051	Oleylamine	As per requirement
1052	Methylammonium iodide	4
1053	Formamidinium Bromide Bis (Trifluoromethane)sulf	1
1054	Onimide Lithium salt	1
1055	Formamidinium iodide, Methylammonium	1
1056	bromide 98%	2
1057	N,N Dimethylformamide, anhydrous, 99.8%	2
1058	Dimethyl sulfoxide, anhydrous, ≥99.9%	2
1059	Acetonitrile anhydrous, 99.8%	2
1060	2-Propanol anhydrous, 99.5%	2
1061	1-Butanol, anhydrous, 99.8%	2
1062	Toluene anhydrous, 99.8%	2
1063	Butylamine 99.5%	2
1064	Di ethyl ether	2
1065	Diethyl sulfide 98%	2
1066	Spiro-MeOTAD, 99% (HPLC)	3
1067	Lead(II) iodide 99%	5
1068	4- <i>tert</i> -Butylpyridine 96%	3
1069	Isopropanal(IPA)	5
1070	Lead bromide	5
1071	Cesium iodide	3
1072	Tin oxide	2
1073	Titanium tetrachloride	1
1074	Poly(3-hexylthiophene-2-5 diyl) P3HT	5
1075	PCBM	5
1076	Titanium dioxide	As per requirement
1077	2-(9-cabazolyl) ethyl boronic acid	As per requirement
1078	Multi-Pocket UHV E-Beam source(Electron Beam gun with 6 K.V power, Supply and cables, feed through ),	1
1079	19" Instrumentation rack for all electronics like e-gun controller	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1080	Box type Chamber for thin film deposition for customized e-beam Evaporator including, Four motor rotate crushable with electrical control panel, Electric control panel assembling & wiring, bellow, Gas line adaptor for Mass flow controller, Flinch for Turbo molecular fitting, Roughing & backing valve pneumatic, vacuum gauges, Substrate rotator and Substrate holder, Load Lock, thickness monitor (Two) etc.	1
1081	High-resolution optical microscope	1
1082	Web coater/Spray coater	1
1083	Box Furnace	1
1084	IR Lamp	1
1085	EMF weighing balance	1
1086	High temperature (up to 350°C) and High Pressure Reactor (up to 200 bar)	1
1087	Temperature attachment to XRD up to 1000°C	1
1088	High-purity (18.2 M ohm-cm resistivity) Deionized water plant/unit	2
1089	Co-planer waveguide FMR (attachment unit to existing facility).	1
1090	Refractometer	1
1091	Simultaneous TGA/DSC instrument	1
1092	DC Magnetron Sputtering unit	1
1093	Hyperthermia measurement system	1
1094	X-ray tube	1
1095	Blaine fineness instrument	1
1096	Hot plate	2
1097	Homogenizer	2
1098	Digital ultrasonic cleaner	1
1099	Vacuum Induction Furnace	1
1100	Aluminium Nitrate	10
1101	Zinc Sulphide	20
1102	Copper Chloride	2
1103	Manganese(II) Chloride	2
1104	Magnesium Flouride	10
1105	Chromium chunks	1
1106	Al Wire	2
1107	Ag Wire	1
1108	Al shots	1 box
1109	Gd <sub>2</sub> O <sub>3</sub>	4
1110	Eu <sub>2</sub> O <sub>3</sub>	4
1111	Y <sub>2</sub> O <sub>3</sub>	1
1112	Yb <sub>2</sub> O <sub>3</sub>	2
1113	Tm <sub>2</sub> O <sub>3</sub>	1
1114	MgNO <sub>3</sub>	2
1115	BaNO <sub>3</sub>	4
1116	Na <sub>2</sub> VO <sub>4</sub>	3

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1117	PMMA 495 Kg/mol,	1
1118	PMMA coated PET substrate	1
1119	Copper Foil, 0.025mm thick, 99.999%, 25x200mm Alfa Aesar 10950	2
1120	Silicon Wafer, P- type Boron doped, 300 nm SiO2 GMS	6
1121	KBr FTIR Grade	1
1122	UV filter 254nm	4
1123	Nitrogen gas cylinder	3
1124	Mix Gas Cylinder (95% Nitrogen + 5% Hydrogen)	2
1125	Methane gas cylinder	1
1126	Hydrogen Gas	2
1127	Argon Gas	2
1128	Argon + hydrogen Gas	1
1129	Thickness monitor quatrz crystal	2pkt
1130	Molybedunam sheets	1
1131	Mo boats	100
1132	tungusten Spiral Boats	100
1133	tungust wire	1
1134	PET substrate	10/pkts
1135	Alumina Crucible Boat shape (105mm L*16mm W* 11mm H)	20
1136	Alumina crucible tray type (150mm L*70mm W*25mm H)	10
1137	Alumina Crucible Conical tall shape (73 outer dia * 35 inner dia * 90	20
1138	Graphite crucible (135mm OD*120mm H)	2
1139	Muffle Tube for MTI furnance	4
1140	Quartz tube 65 x 1200 mm	2
1141	Agate Mortar 8" inch	2
1142	Tip curved tweezer	10
1143	Pointed slant tip tweezer	10
1144	Three neck round bottom flask	5
1145	Beaker	24
1146	Beaker	48
1147	Beaker	20
1148	Beaker	40
1149	Beaker	20
1150	Reagent bottles	30
1151	Reagent bottles	30
1152	Petri Dish	25
1153	Petri Dish	30
1154	Petri Dish	40
1155	Cluture Flat tubes	100
1156	Cluture Flat tubes	150
1157	Cluture Flat tubes	100
1158	Magnetic stirring rescures	2
1159	Magnetic Beads 9X60	12

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1160	Magnetic Beads 9X60	12
1161	Centrifuge tubes	100
1162	Plastic box (S)	20
1163	Plastic box (L)	20
1164	Spatula	30
1165	Cleaning Brush	5
1166	Cotton	20 pkts
1167	Cryo tags/labels	2
1168	Nitrile gloves (S)	15
1169	Nitrile gloves (M)	15
1170	Nitrile gloves (L)	15
1171	Tissue Roll	200
1172	Aluminium Foil	60
1173	Lint free tissues	15
1174	TEM grids	4
1175	Holey Carbon TEM Grids	4
1176	Actone ovi	10
1177	Acetone	50
1178	Ethanol	30
1179	HNO <sub>3</sub> acid	15
1180	HCL acid	10
1181	H <sub>2</sub> SO <sub>4</sub>	2
1182	IPA	25
1183	Anisole	5
1184	n-Hexane	4
1185	TEOS	2
1186	Anhydrous DMF	1
1187	Succinic anhydride	
1188	Phosphate Buffer saline 50 tablet	1
1189	IGEPAL CO-520 Sigma (Polyoxyethylene nonylephenylether branched)	1
1190	N-methyl 2-pyrididone, NMP	1
1191	Styrene/Butadiene copolymer	2
1192	Tetraethyl orthosilicate	1
1193	Boron Nitride, Powder, CA. 1Micron	1
1194	AVICEL(R)PH-101, PH EUR, USP, APPROX. &	1
1195	Nanoclay, Nanomer PVG&	2
1196	N,N-Dimethylacetamide, anhydrous, 99.8%	1
1197	Bis[3-(triethoxysilyl)propyl] tetrasulfide	2
1198	Triethoxy(octyl)silane 97%	2
1199	Sodium bicarbonate	1
1200	Ammonium hydroxide	2
1201	Methanol	1
1202	(3-Aminopropyl)triethoxysilane	1

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1203	1,3-Diphenylguanidine	1
1204	Ammonia	1
1205	Dimethylformamide	1
1206	N-Methyl-2-pyrrolidone, NMP	1
1207	Graphite crucible	20
1208	Toluene	4
1209	TiO2,	1
1210	SiO2,	1
1211	CdTe,	1
1212	CdSe,	1
1213	Ti,	1
1214	Si,	1
1215	Soap solution	2
1216	Vials, screw top with solid green Thermoset cap with PTFE liner, prea	1
1217	Eppendorf® Biopur® Safe-Lock microtubes (1.5mL)	1
1218	Eppendorf tube (tube capacity 5mL)	1
1219	magnetic stirring bar, PTFE, cylindrical (L 10mm, bar dia.3mm)	1
1220	magnetic stirring bar, PTFE, cylindrical (L 5mm, bar dia.2mm)	1
1221	C3 Single channel variable volume pipette, calibration & accuracy	1
1222	C3 Single channel variable volume pipette, calibration & accuracy	1
1223	Universal Graduated Tips (200 microlitre)	1
1224	Universal Graduated Tips (1000 microlitre)	1
1225	repairing of UV-Visible system	1
1226	repairing of PL system	1
1227	repairing of UPS 40KVA	1
1228	repairing of UPS 5KVA	2
1229	Other unclassified Lab consumables chemicals, micropepettes sample boxes, Nitril gloves, Spatula, High temperature Gloves, Masks, Safety glass, Welding glasses, Glass cutting tool, Tissue paper, Weighting Paper, Tweezers, First Aid Box, and stationary item- belongs to P4 category etc.) & Other Equipment repairchemicals, micropepettes sample boxes, Nitril gloves, Spatula, High temperature Gloves, Masks, Safety glass, Welding glasses, Glass cutting tool, Tissue paper, Weighting Paper, Tweezers, First Aid Box, and stationary item- belongs to P4 category etc ) & Other Equipment repair UPS batteries	As per requirement
1230	Cartridge (HP12A)	4
1231	Cartridge (CB540A,CB541A,CB543A, CB542A) coloured	4
1232	Cartridge (HP1022)	2
1233	Ring binder	100
1234	Register	100
1235	Plastic folder	100
1236	Clip file folder	100
1237	Envelop a4	100

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1238	Envelop a3	100
1239	Mouse	15
1340	Keyboard	10
1241	Hard disk	2
1242	PENDRIVE 64GB	2
1243	Paper clip	2
1244	Tape	10
1245	Sticky notes	10
1246	Highlighter	10
1247	Filing cabinet	1
1248	Bulldog clip	2
1249	Issue Label	1pack
1250	Double sided tape	10
1251	Brown tape	10
1252	Marker	10
1253	Moserbear CD plain	100
1254	Scissor small no. 25	4
1255	Scissor medium size no. 35	4
1256	Scissor big size no 45	4
1257	Stapler machine kangaroo No. 10	10
1258	Stapler machine kangaroo No. HD 10D	10
1259	Stapler machine kangaroo HP45	10
1260	Stapler Pin No 10 Kangaroo	30
1261	Stapler Pin No 24/6 Kangaroo	30
1262	Charges relating to organisation of Meetings/Seminars/Workshops/Conference, Training Course, Registration and Training fee, Minor Job work, Licence and fees, Honorarium to consultants, Honorarium to Experts, Honorarium to TSC members, Poster Printing charges/exhibition arrangements, Internet/Telephone/Transponder charges, Web charges/ Web development fee, Books and StandardsOther unclassified Lab consumables chemicals,Other Equipment repair, UPS batteries	As per requirement
1263	Chemicals	As per requirements
1264	Protection covers for magneto rheometer, Moke, EPR spectrometer /Attachments	As per the requirement
1265	Repair of EPR accessories and Repair of LN2 and LH2 unit Temp controller unit	1
1266	EPR power supply for signal channel	1
1267	Quartz tube sealing	50
1268	Sample box, spatula, Emrey paper, butter paper, Twizzer	10
1269	Labeling, bottling and printing work for BND	As per requirements
1270	Sputtering Target(Mn3Sn,Mn3Ge,CoFeB,Ru)	4
1271	Machining of graphite crucible	10
1272	Repair of 20 KVA UPS (XRF)	1

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1273	Chemicals	As per requirements
1274	Glass sample bottle (5ml)	500
1275	Glas sample bottle (15ml)	500
1276	Nitrile gloves (small)	500
1277	Nitrile gloves (medium)	500
1278	Aluminium foil	10
1279	Tissue paper	200
1280	Sample container (50ml)	15
1281	Kanthal wire	4
1282	Heating element for Furnance	4
1283	Muffle for tubular furnace	3
1284	Furnance repair	2
1285	Alumina crucible	20
1286	Dc magnetron sputtering accessories	50
1287	Substrates(Quartz,Si/SiO <sub>2</sub> ,Mgo,Y:ZrO <sub>2</sub> etc)	30
1288	Sputtering Target (NiFe,Mn,Sn,Fe,Co etc)	10
1289	Rocking Piston based vacuum pump for EPR spectrometer	1
1290	Quartz rod with half cut	As per the requirement
1291	Quartz tube for EPR measurement (3mm ID,4 mm OD &4mm ID, 5 mm OD)	As per the requirement pcs each
1292	Quartz Capillaries for EPR measurement (50 microlitre)	250
1293	Quartz tube for polycrystalline sample synthesis	As per the requirement
1294	Unclassified MOKE acessories	As per requirement
1295	Chiller repair	2
1296	MXRD filter	10 nos
1297	Motor repair of XRD chiller	5
1298	EPR accessories/Consumables 1. Thermocouple 2. Sample holder for liquid helium sample 3. ENDOR standard sample 4. Electronics tool kit for EPR system 5. Q band Quartz tube	100
1299	Laser diode, Photo diode,Polarizer,Quartz cuvette	4
1300	Silicon oil with diff viscoicity ranging from 1cp to 500000cp HP laser jet Toner Cartridge 126A CE310A CE311A CE312A CE313A	1 01 nos 01 nos 01 nos 01 nos
1301	HP laser jet Toner artridge 131A CF210A CF211A CF212A CF213A	02 nos 02 nos 02 nos 02 nos

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1302	Minor equipment repair (Chiller, Temperature Water bath, compressor etc.)	As per requirement
1303	EPR repair	1
1304	High temperature box furnace repair	1
1305	Towels	13
1306	Duster	25
1307	Registrar	25
1308	Spiral Notebook	25
1309	Scissors	5
1310	Desk organisers	15
1311	Ring binder file	20
1312	Tape dispenser	4
1314	Sticky Notes	15
1315	Paper A4	15 pack
1316	stapler	15 nos
1317	White fluid	10 nos
1318	Ruler	10 nos
1319	Pen (different color)	50 nos
1320	Cello tape (transparent)	10 nos
1321	Packing tape( brown)	10 nos
1322	Highlighter pen	10 nos
1323	Marker (white board)	10 nos
1324	Permanent marker	10 nos
1325	Tissue paper roll	100 nos
1326	Dimethylsulphoxide (DMSO) anhydrous--276855	1L
1327	Dichlorobenzene anhydrous-240664	1L
1328	Octylamine-O5802	500g
1329	Tin iodide anhydrous	5g
1330	Bismuth Iodide-341010	25g
1331	Aluminium beads (5-15mm)-266523	250g
1332	Methylamine hydroiodide-M2556	25g
1333	Nickel (II) oxide-203882	20g
1334	Hexane-34859	2.5L
1335	Lead chloride-268690	5g
1336	TTIP (Titanium isopropoxide)	2L
1337	Strontium acetate	500g
1338	Ta <sub>2</sub> O <sub>5</sub> (Tantalum(V) oxide)	25g
1339	TOP (Trioctylphosphine)	100ml
1340	TOPO (Trioctylphosphine oxide)	100g
1341	n- Butylamine	2.5L
1342	Dimethylformamide (DMF) anhydrous -227056	1L
1343	PEDOT:PSS-900181	100g
1344	Hydrochloric Acid	2.5L
1345	Sulphuric acid	2.5L

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1346	Tin oxide (SnO <sub>2</sub> )	100g
1347	BaO (Barioum oxide)	25g
1348	CaO (Calcium oxide)	100g
1349	potassium carbonate (K <sub>2</sub> CO <sub>3</sub> )	500g
1350	zirconium oxynitrate dihydrate (ZrO(NO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O)	100g
1351	Tertiary butyl arsine	10g
1352	Gallium Acetyl Acetonate-393541	5g
1353	Trimethyl aluminium-699020	500ml
1354	DiTetrabutylammonium-703214	1g
1355	Ammonium Acetate-431311	50g
1356	Decanoic acid	100g
1357	meso-2,3-Dimercaptosuccinic acid	5g
1358	Iron(III) oxide ≥99.995% trace metals basis	5g
1359	Polyethylene imine	250ml
1360	Iron(III) Chloride,Anhydrous Powder	1g
1361	Iron Acetylacetone	10g
1362	PMMA 495 Kg/mol,	1
1363	Propane-2-ol (IPA)-	10
1364	HNO <sub>3</sub> (AR grade)-	2
1365	Tin Chloride(SnCl <sub>2</sub> )	1
1366	Lithium Fluoride	1
1367	Oleylamine	2
1368	Methylammonium iodide	2
1369	Tin(4) acetate	2
1370	Acetylacetone	2
1371	Regeneration cylinders	50 nos
1372	Formaldehyde Ammonia Iodide	2
1373	bis(trifluoromethane)sulfonimidelithium	2
1374	Spiro	1
1375	N,N-Dimethylformamide	1Lx5
1376	4- <i>tert</i> -Butylpyridine	25g
1377	Diethyl ether	1Lx5
1378	g-Butyrolactone	1
1379	Methylammonium bromide	1
1380	Methylammonium chloride	1
1381	4,7-Dibromobenzo[c]-1,2,5-thiadiazole	2
1382	Tetrabutylammonium hexafluorophosphate	1
1383	Tetrabutylammonium tetrafluoroborate	1
1384	4,7-Bis(2-bromo-5-thienyl)-2,1,3-benzothiadiazole	1
1385	2,2'-Bithiophene	2
1386	Tetrabutylammonium perchlorate	1
1387	Acid & chemical resistant gloves	6
1388	RTD elements/sensors	10

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1389	Alumina/Ceramic paste (adhessive)	2
1390	conducting paste	2
1391	Power supply repair	1
1392	DC Power supply repair	1
1393	GPIB to USB adapter	1
1394	Repair of He-leak detector and replacement of faukty comonents	1
1395	Siver nitrate	1 kg
1396	Drierite Silica Gel and molecular sieze	As Per Requirement
1397	Vacuum Pump	1
1398	Chiller Unit	1
1399	Compressor	1
1400	Spark Plasma Sintering Dies	10
1401	Rotary Vacuum Pump	1
1402	Zirconium Foil	10 Nos
1403	Silicon powder	150 g
1404	Manganese Powder	500 g
1405	Complete overhauling, repairing, servicing and trouble shooting of Seebeck coefficient maeasurement system	1
1406	Helium Gas	1
1407	Seagate 2TB Backup Plus Slim USB 3.0 Portable 2.5 Inch External Hard	2
1408	Lenovo N100 Wireless Mouse	2
1409	HP K2500 Wireless Keyboard, USB2.0,64Bit O.S., conformity to IS:14441	1
1410	64GB USB 3.0 Pen drive with 2-year warranty (SanDisk Ultra 64GB USB 3.0 Flash Drive)	1
1411	HP 64GB USB 3.0 Pen drive with 1-year warranty (X765W 64 GB)	1
1412	HP Laser Jet P1007 and HP Laser Jet P1008 Printer Cartridge 88A (OG)(HP)	1
1413	HP Printer M1136MFP Cartridge 88A (ORRIL4PRINT) (Use HP Printer M1136MFP)	1
1414	Cleaning of Glass Flange and Pump repair etc	As Per Requirement
1415	UPS Batteries	10
1416	CMOS Batteries	20
1417	Acetone	5
1418	Computer table	1
1419	Office chair	1
1420	Log Books	10
1421	Paper Rim (A4 Size)	10
1422	Sticky Notes	5
1423	White Board Markers	5
1424	Board Wiper	4
1425	Aethalometer-AE33-Filter Tape	10 Nos

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## NPL Project Procurement List 2019-20 as on 6th Dec.

1426	Microsoft Office	1
1427	Sigma Plot Software	1
1428	Calibration of Pyranometers, Pyrgeometer, UV radiometer	1 each
1429	Multimeter	1
1430	Laptop	1
1431	Si wafer (Semi Prime)	50
1432	Ag Paste	1
1433	UV absorber for Plastic	1x25 kg
1434	Polymer Granules mixed with flyash	1x100 kg
1435	Flame Retardent	1 x 25 kg
1436	Ethanolamine	20 x 500 ml
1437	Benzene	1 x 25 ltrs
1438	Calcium borate	1 x 25 kg
1439	Nitric acid	5x2.5 ltrs
1440	Clay powder	1 x 100 kg
1441	Red Mud	1x100 kg
1442	Teflon coated trays	1 x 2
1443	Face masks	1x12
1444	Gloves	1 x 3 packets

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