

Request for Proposal for Supply of

- (A) Physics, Chemistry, Zoology, Botany & Biology Laboratory Equipments,**
(B) Furniture for Science Laboratories and
(C) Civil Works for Science Laboratories (for 23 numbers of Secondary/Higher Schools) in the State of Meghalaya through open Tender.

Ref No.: DSEL/SEC-B/MISC/3/2015

Dated 26th September 2017

CORRIGENDUM – 1

Dated 2nd November 2017

OFFICE OF THE DIRECTOR OF SCHOOL EDUCATION & LITERACY, SHILLONG, MEGHALAYA

Directorate of School Education & Literacy, Laitumkhrah, Shillong-793003,

Ph-0364-2226062, 2225083/, Fax: 0364- 2226062

Further to RFP Document [Ref No.: DSEL/SEC-B/MISC/3/2015 Dated the 26th September 2017, amendments are notified as below. All other requirements / specifications / information / Terms and Conditions remain unchanged except as given below.

Factsheet Sl. No.4: Earnest Money Deposit,

4.	Earnest Money Deposit	Rs.200000/-Non-refundable, in the form of Demand Draft/ BG in favor 'Director of School Education & Literacy Shillong, Meghalaya.'
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Stands amended as :

4.	Earnest Money Deposit	Rs.200000/-Refundable, in the form of Demand Draft/ BG in favor 'Director of School Education & Literacy Shillong, Meghalaya.'
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Factsheet Sl. No.6: Last Date for sale of Tender,

Stands Amended as:

6.	Last Date for Sale of Tender	18th November 2017 before 12:00 PM
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Factsheet Sl. No.8: Last Date of Submission of Tender Document,

Stands Amended as:

8.	Last Date for Sale of Tender	20th November 2017 before 12:00 PM
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Factsheet Sl. No.9: Opening of Tenders(Technical Bid)

Stands Amended as:

9.	Opening of Tenders(Technical Bid)	20th November 2017 at 3:00 PM
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ANNEXURE I

1. Detailed Technical Specifications:

I.1 Science Lab Equipments:

iv. Combined Biology:

Stands Amended as:

Sr. No.	Name of Item along with Specification		No per School	Total Nos
81	Entamoeba	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
82	Plasmodium	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
83	Ascaris	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
84	Microsporium	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
85	Capparis decidua	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
86	Alcacia arabica	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
87	Zizyphus nummularia	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
88	Calatropis	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
89	Opuntia dillemi	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
90	Euphorbia	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
91	Kangaru rats	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
92	Camels	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
93	Hydrilla	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
94	Vallesneria	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23

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95	Polamogelon	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
96	Eichhornia	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
97	Utricularia	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
98	Typha	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
99	Carpa or Rohu Fish	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
100	T.S.Q Ovary (mamalian)	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
101	T.S.Q Testis (mamalian)	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
102	T.S.Q Plastula (mamalian)	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
103	Oscilataria	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
104	Spirogyra	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
105	Phizopus	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
106	Pimus	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
107	Brasica Campistris	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
108	Luch	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
109	Prawn	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
110	Honey bee	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
111	Snails	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
112	Amoeba	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23

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113	Starfish	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
114	Shark	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
115	Rohn	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
116	Frog	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
117	Calotis	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
118	Rabbit	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
119	Pigeon	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
120	Snail	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
121	Scoliodon	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
122	Raddish Root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
123	Carrot root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
124	Taberous root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
125	legumir root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
126	Mangrove root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
127	Sweet potatoes	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
128	Fabriculated root	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
129	Prop roots	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
130	stills roots	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
131	Roots of soddar	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
132	Roots of money plants	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23

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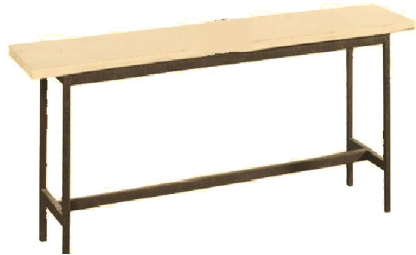


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133	Roots of Vanda	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
134	Roots of Jussiaea	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
135	Bulb of onion	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
136	Corm of Kachalu	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
137	Rhizome of Ginger	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
138	Tubu of Potalo	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
139	Runners	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
140	Sucker	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
141	Water hyacinth	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
142	Stem tendrils	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
143	Phylloclade qupuntia	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
144	Leaf spines q cactus	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
145	Pitcher Plants	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23
146	bladder host	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms	1	23

1. Detailed Technical Specifications:

I.2. Furniture:

Stands Amended as:

Technical Specifications				
Sl.No.	Name of Item	Specifications	Total Nos.	Illustrative Design
1	Table	Solid Wooden Top and 19mm Iron Frame L48 x B24 x H28 inches	92	
2	Stool	Iron stool with wooden seat. Structure made of mild steel square pipe 20x20mm (Mild steel) wall thick 1.2mm. L15 x B18 x H16 inches	359	
3	Almirah	Steel almirah manufactured from 20 gauge Mild Steel (MS) sheet for body and doors. The Almirah should have four shelves making five compartments of standard size. The Almirah should have height adjustable shelves. The doors of almirah provided with stiffeners made of MS sheet spot welded to the doors. The almirah equipped with a special three way bolting device with tongue-in groove inter locking mechanism with six lever lock. The handle made from a non-ferrous metal alloy, chrome plated. The complete almirah duly painted with synthetic enamel paint. MS sheet spot welded to the doors. The almirah equipped with a special three way bolting device with tongue-in groove inter locking mechanism with six lever lock. The handle made from a non-ferrous metal alloy, chrome plated. The complete almirah duly painted with synthetic enamel paint. 78" (H) X 35.5" (W) X 19" (D)	16	

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School Wise Furniture Requirements

Sl No	School Name	Tables	Stool	Almirah
1	Ampati Govt. Higher Secondary School, Ampati	6	24	1
2	Baghmara Govt. Higher Secondary School, Baghmara	6	13	0
3	Dadenggiri Govt. Higher Secondary School, Dadenggiri	4	16	1
4	Dalu Govt. Higher Secondary School, Dalu	6	24	0
5	Govt. Boy's Higher Secondary School, Jowai	2	8	2
6	Govt. Boy's Higher Secondary School, Shillong	0	0	0
7	Govt. Boy's Higher Secondary School, Tura	6	24	0
8	Govt. Girl's Higher Secondary School, Jowai	4	16	1
9	Govt. Girl's Higher Secondary School, Shillong	4	16	0
10	Govt. Girl's Higher Secondary School, Tura	2	8	1
11	Jirang Govt. Higher Secondary School, New Jirang	6	24	0
12	Maharam Govt. Higher Secondary School, Mawkyrwat	6	24	0
13	Mallangkona Govt. Higher Secondary School, Mallangkona	4	16	2
14	Nongtalang Govt. Secondary School, Nongtalang	4	16	2
15	Partharkmah Govt. Higher Secondary School	4	16	2
16	Resubelpara Govt. Higher Secondary School, Resubelpara	6	24	0
17	Rongrenggiri Govt. Higher Secondary School, Rongrenggiri	2	2	0
18	Rymbai Govt. Secondary School, Rymbai	4	16	2
19	Sibsingh Memorial Govt. Higher Secondary School, Nongstoin	4	24	0
20	Sohkha Govt. Higher Secondary School, Sohkha	4	16	0
21	Tirot Sing Memorial Govt. Higher Secondary School, Nongkhlaw	4	16	0
22	Umthlong Nongthliew Govt. Higher Secondary School, Nongthliew	4	16	2
	TOTAL	92	359	16

1. Detailed Technical Specifications:

1.1 Science Lab Equipment's

i. Physics

Stands Amended as :

Sl no	Item	Specifications	No Per School	Total Nos
40	Multimeter	<p>Digital (Imported)</p> <p>TRMS multimeter, including batteries and 1 set of measuring cables.</p> <p>Features:-</p> <ul style="list-style-type: none">• Easy, modern operation with function keys instead of a dial• Measurement parameter detection and selection via the• Socket assignment• Prevent incorrect settings• Large, backlit display <p>Technical Specification:-</p> <ul style="list-style-type: none">• Voltage measuring range: 0.1mV to 600V AC/DC• Current measuring range :1mA to 10A AC/DC• Resistance measuring range : 1mA to 40MΩ• Frequency measuring range : 0.01Hz to 500KHz• Capacitance measuring range : 0.01 nF to 100μF• Display (counts) : 4,000• Measurement category: CAT IV 300 V, CAT III 600 V• Protection class IP 64• Operating temperature: -10 to +50 °C• Warranty 1 year• Authorization TUV,CSA,CE• Standards EN 61326-1	4	92

iii. Combined Zoology & Botany:

Stands Amended as :

Sl no	Item	Specifications	No Per School	Total Nos
13	Laboratory Thermometer	Mini thermometer, 133 mm long, up to +150 °C with protective sleeve for probe shaft. Features:- <ul style="list-style-type: none">• Universally applicable• Self-explanatory and robust• Ready for use at the press of a button Measuring Range: -50 to +150°C, Accuracy: ±1 °C (-10 to +99.9 °C, ±2 °C (-30 to -10.1 °C). ±2% of mv (+100 to +150 °C). Resolution: 0.1 °C (- 19.9 to +150 °C), 1°C(remaining range)	5	115
14	Maximum and Minimum Thermometer	Waterproof TC temperature measuring instrument (Type T), incl. lockable thermocouple probe Type T, softcase and calibration protocol. Features:- <ul style="list-style-type: none">• Auto-hold, hold and min./max. function• Operating temperature -20 to +60 °C• Storage temperature -30 to +70 °C• Protection class IP67 (with delivered probe connected)• Measurement rate 2 measurements per second• Adjustment time t99 10 s (in moving liquid)• Display LCD, one-line, with status line• Standard EN 13485• EC guideline 2004/108/EG• Power supply 3× battery Type AAA• Battery life 2500 h (typical, at 23°C)	1	23
16	pH Meter Electrode	ph/Temperature Measurement Instrument Features:- <ul style="list-style-type: none">• Ideally suited to applications in liquid• Built-in temperature sensor• Maintenance-free gel electrolyte• Robust, waterproof and dishwasher-safe	2	46

		<p>protective cover</p> <ul style="list-style-type: none"> • (TopSafe, protection class IP65) • Automatic final value recognition (Auto-hold) • Two-line display <p><u>Technical Specification:</u> Sensor type : pH electrode Meas. Range 0 to 14pH Accuracy ± 1 digit: ± 0.02pH Resolution: 0.01pH Sensor type: NTC Meas. Range: 0 to 60°C (Short-term to +80 °C max. 5min) Accuracy ± 1 digit: ± 0.4 °C Resolution: 0.1 °C <u>General Technical Data</u> Oper. Temp : 0 to +60°C Storage temp: -20 to+70 °C No. meas. Channels: 2 channel Temperature compensation : Automatic Meas. Rate: 2 measurements per second ABS with TopSafe, Protection type IP 68</p>		
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ANNEXURE III

37. Technical Bid:

III.2 Furniture

Stands Amended as :

S.No	Criteria	Max Marks	Evaluation
Experience			
1	Experience in similar large scale Government orders of INR 1 crore and above in single contract within last 3 years	5 mark for each such Order Max Marks:25	Copies of work orders
2	Experience of Similar projects in North eastern state	5 mark for each such Project Max Marks:25	Client Certificate, Completion certificate
3	CE/USFDA/BIS/ISO Quality Standards	5 mark for each such Certificate Max Marks:2	Certifications

TOTAL (A)		75	
Specifications			
1	Adherence to Specifications of the product offered – Dimensions Quality, Finishing, Material	1 Mark per item 3 Items x 1 Mark=3 maximum marks Pro rata equivalent marks (10 Marks if Full Compliant)	Sample product(Compliance to Specifications as per Annexure 1.2)
TOTAL (B)		30	
Total Marks (A+B)		105	

1. Quality Standards:

Samples for Inspection:

Stands amended as:

Science Lab Equipments and Furniture ONLY

- Samples whenever required, for valuation shall be provided by the supplier at free of Cost.
- The products should fulfilling technical specifications as per CE/USFDA/ISO or any other prevailing Indian Standards.
- In case bidder quoted more than one item for a particular item, during Technical round the Tender committee will select one item only according to quality satisfaction & the price bid of the selected item only shall be taken into account.
- The Tender committee has the right to reject any sample in case the sample quality is found unsatisfactory and bidder has no right for any objection.
- The Tender committee has the right to retain all samples till the announcement of technical bid results

The Samples for Science Equipments are listed below:

Sl No	Item/ Name	Specifications	Subject
1	Compound Microscope	Olympus	Combined Zoology and Botany
2	Daniel cell	(copper vessel) (Copper vessel of 150 ×100mm (± 510mm) with perforated shelf, thick zinc rod of size, 150 × 10mm(With brass terminal, porous spot of size 115×50mm diameter)	Physics
3	Dissecting set	"surgeon" brand	Combined Zoology and Botany
4	Galvanometer	30-0-30 plastic body with terminal, Grade A Square type	Physics
5	Multimeter	Digital (Imported) Economical	Physics

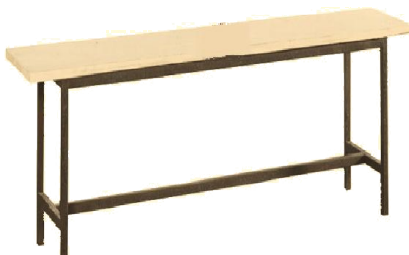

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6	pH meter (digital)	LED Display with Manual Temperature	Combined Zoology and Botany
7	Screw gauge	15mm with ratchet stop, stainless steel and brass body	Physics
8	Spirit lamp	aluminum	Combined Zoology and Botany
9	Stop clock	metal body with start stop & fly back action, dial size approx. 100mm, divided in 0-60 x 1 sec	Chemistry
10	Atomic model set	23mm diameter +/- 1mm set of 120 balls with 100 locking plugs and Plastic connectors	Chemistry
11	Charts showing respiratory & circulatory system	size 50x75 cm ± 2cm both side laminated with plastic rollers	Combined Biology
12	Preserved Specimen hydrilla	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm.	Combined Biology
13	Testtube	12x75mm±1mm (borosilicate glass) with rim	Chemistry
14	Beaker	100ml (borosilicate glass)	Chemistry

The Samples for Furniture are listed below:

Sl.No.	Name of Item	Specifications	Illustrative Design
1	Table	Solid Wooden Top and 19mm Iron Frame L48 x B24 x H28 inches	
2	Stool	Iron stool with wooden seat. Structure made of mild steel square pipe 20x20mm (Mild steel) wall thick 1.2mm. L15 x B18 x H16 inches	

1. Payment Terms:

Stands Amended as :

Payment will be made after successful execution of the order in Pro Rata basis completed with delivery, inspection, acceptance and Receipts of the Goods. The bidder should submit the bills/invoices with a copy of delivery Challans and Completion Certificate from the Respective Schools– duly acknowledged by the Purchaser and order copy with a satisfactory inspection report of the designated Technical Committee after Delivery and Execution duly signed and accepted should be submitted at DSEL office, Laitumkhrach, Shillong Meghalaya in original. Three copies of each document should be made and one copy handed over to the authority at the delivery site.

The Payment Milestones are defined as follows:

Sl.No	Payment Milestone	Payment
1	Mobilization Advance on the signing of Contract	10% of the total contract value
2	Science Lab Equipments and Furniture	
	Supply of Science Equipments & Furniture in schools of the following districts-East Khasi Hills, West Khasi Hills ,South West Khasi Hills , (7 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 7 schools of the Districts
	Supply of Science Equipments & Furniture in schools of the following districts-West Jaintia Hills ,East Jaintia Hills & Ri-Bhoi, (7 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 7 schools of the Districts
	Supply of Science Equipments & Furniture in schools of the following districts- North Garo Hills ,East Garo Hills ,South Garo Hills ,West Garo Hills ,South West Garo Hills, (9 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 9 schools of the Districts
3	Civil Works	
	Execution/Completion of Civil Works in schools of the following districts-East Khasi Hills ,West Khasi Hills ,South West Khasi Hills ,(7 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 7 schools of the Districts
	Execution/Completion of Civil Works in schools of the following districts-West Jaintia Hills ,East Jaintia Hills & Ri-Bhoi, (7 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 7 schools of the Districts

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Execution/Completion of Civil Works in schools of the following districts- North Garo Hills ,East Garo Hills ,South Garo Hills ,West Garo Hills ,South West Garo Hills, (9 schools)	Pro-rata payment equivalent to the total PO value of Science Lab Equipments and Furniture of the 9 schools of the Districts
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ANNEXURE I

1. Detailed Technical Specifications:

I.1 Science Lab Equipments:

Physics

Stands Amended as :

Sl. No.	Name of Item	Specifications	No per School	Total Nos
1	Voltmeter (0- 3 amp) -	plastic body with terminal , Square type grade A	3	69
2	Ammeter (0 - 3 amp) -	plastic body with terminal,Square type grade A	3	69
3	Battery eliminator (0 - 12 volts) -	plastic body with indicator	1	23
4	Rheostat (50 ohms) -	170mm \pm 5mm, 50 Ohms with PVC feet (Aluminium)	1	23
5	One way key -	with brass block on plastic base with brass terminals	3	69
6	Connecting Wires (cotton insulation) -	double cloth covered 20 m	3	69
7	Sand paper -	Standard, 60 and 120 number.	4	92
8	Metre bridge & Jockey -	large and heavy copper strip of (SWG No. 18) mounted on a heavy 3/4" thick laminated base of size 45" x 4" x 3/4".	2	46
9	Galvanometer -	30-0-30 plastic body with terminal, Grade A Square type	3	69
10	Resistance box (0.1 - 500 ohms) -	Constantan Coil, 9mm Thick Brass Block	1	23
11	Resisitant Wire - 6 rolls	NICHROME WIRE,100gms	2	46
12	Resistance coil - 40 nos (10 each)	2,5,10,20, ohms with brass terminal	2	46
13	Screw gauge -	15mm with ratchet stop, stainless steel and brass body	4	92
14	Meter Scale -	I metre scale wooden Graduation in cm, mm, feet and inch length 1 ,meter	2	46

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15	Resistance box (1 - 500 ohms) -	plug type 0- 5000 Ohms fitted with brass pluges of plastic heads, contact bloks made of brass which are fitted on bakelite/ hylem/ plastic base. The whole assembly fitted on a appropriate polished wooden box	1	23
16	Potentimeter with jockey -	Potentiometer 4 wired Brass Connection with 1 meter rule with pencil jockey & brass terminal fitted on a both side laminated base with plastic feet	1	23
17	A set of optical bench (1 1/2 mts) -	one meter long, double MS chrome plated rods, four uprights (two having slow transfers motions), two lense holders, two opticals pins & two caste iron heavy metallic feet with levelling screws.	1	23
18	Convex lens (Focal length 10 cm, 15 cm, 20 cm) -	diameter 2 inch focal length	4	92
19	1/2 Metre Scale -	Wooden / plastic 12 ' Graduation in cm, mm, feet and inch length 1 ,meter	3	69
21	Prism -	38 mm \pm 5mm Equilateral	6	138
22	Drawing board (35 x 25 cm) -	soft wood 300x450 \pm 10mmx18mm \pm 2mm	6	138
23	Drawing Pins -	With plastic head	4	92
24	Hair pins (Lenght - 7cm) -		4	92
26	Travelling Microscope	travel length 165 cm horizontally & 14 cm verticaly, provied with SS/Brass scale. Vernier reading 0.02 or 0.01mm, packed in an appropriate plywood polished case	1	23
27	P.N.Junction -	(Semi conductor Diode on board)	2	46
28	Common Emitter n-p-n or p-n-p transistor -		4	92
29	Three set of bulbs (25w, 40 w and 60w) -		4	92
30	Three (on / off) switches -		4	92
31	Flexible wire wit red and black insulation -	double cloth covered 250gm	1	23
32	A fuse & fuse wire -		4	92
33	Two pin plug -		4	92
34	Diode Assorted pack -		4	92
35	L.E.D. -		4	92
36	Transistor - Assorted	Apparatus mounted on ABS plastic box fitted with terminals & two meters	4	92

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37	I.C. -Assorted			0
38	Resistor -		4	92
39	Capacitor -	Assorted (Pack of 25)	4	92
40	Multimeter -	Digital (Imported) Economical	3	69
41	Plane mirror -		6	138
42	Plumb Line -	(Made of brass chrome plated std lab size)	4	92
43	Concave Mirror (Focal LENGHT- 20CM)	diameter 2"	4	92
45	Lycopodium Powder -		1	23
46	Leclanche cell (components) -	comprising of a plastic jar , one piece filled porous pot and one zinc rod with terminals	3	69
47	Daniel cell (Components) -	(copper vessel) (Coper vessel of 150 ×100mm (± 510mm) with perforated shelf, thick zinc rod of size, 150 × 10mm(With brass terminal, porousspot of size 140×50mm diameter)	3	69
48	Two way key -	brass block on plastic base with brass terminals	4	92
49	Ohm's Law Apparatus -	two meter & operational manual fitted on a ABS plastic box	1	23
50	Vernier Callipers -	125mm approx. Chrome plated	6	138
51	Spherical body (set of Marbles) -	Different sized	1	23
52	Wooden Block (known Mass) -	Wooden Block with hook. Teak wood, Superior thick 2 cm x 5 cm x 5cm	4	92
53	Glass Beaker (50 ml) -	(borosilicate glass)	4	92
54	Calorimeter -	in wooden box	3	69
55	Resistance wire -		3	69
56	Half Meter scale -		4	92
57	Glass Sheet (1 cm square) -		4	92
58	Spherometer -	brass dial head 40mm dia, stainless steal, head divided in 100 divisions reading upto 0.005 mm, vertical scale 10-0-10	4	92
59	Glass Sheet (6 cm square) -		4	92
60	Iron stand with base and clamp -		4	92
61	Penulum bob with hook-		4	92
62	Stop clock -	metal body with start stop & fly back action, dial size approx. 100mm, divided in 0-60 x 1 sec	4	92

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63	Digital Balnce -	with light brass beam, 7 agates, teek wood polished showcase, capacity 250 gm, sensitivity 1 mg	1	23
64	Weight box -	10g 20g 50g 100g 200g 500g -- Two each with forceps	3	69
65	Parallelogram law of forces apparatus -		1	23
66	Youngs modulus apparatus -	searles pattern having self centring chucks, graduated micro meter srew to read upto 0.1 mn, made of iron duly powder coated	1	23
67	Hooks law apparatus -	Consisting of 30cm long mirror scale, spring, slotted weights with hanger and pointer, complete on heavy tripod stand.	2	46

ii. Chemistry:**Stands Amended as:**

Sr. No.	Name of Item along with Specification	No per School	Total Nos
1	Air Condensor Liebig Tip Interchangeable joint and inter changeble outer joint300mm	2	46
2	Beakers 100ml (borosilicate glass)	25	575
3	Beakers 250ml (borosilicate glass)	25	575
4	Beakers 500ml (borosilicate glass)	5	115
5	Beakers 1000ml (borosilicate glass)	2	46
6	Burette 50 ml (borosilicate glass)	25	575
7	Burner (Bunsen)with stop cork made of thik brass tube chrome plated screw type air regulator Painted	8	184
8	base 150mm hight app.		0
9	Blow Pipe 8"	5	115
10	Bottel Brush (Medium)	5	115
11	Chart Periodic Table(75x100cm+/-2cm)both side laminated with plastic roller	1	23
12	Chart Colour PH (75x100cm+/-2cm)both side laminated with plastic roller	1	23
13	China Dish 3" porceline	5	115
14	China Dish 5" porceline	5	115
15	Charcoal Block 4"x1" pk of 12 pc	5	115
16	Capillary Tube Both side open pk of 100pc	1	28
17	Conical Flask 250ml (borosilicate glass)	25	575
18	Conical Flask 500ml(1000 ml,2000ml,3000ml)(borosilicate glass)	5	115
		5	115
		5	115
		1	23

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19	Rubber Cork No 2,3,4,5,6,7,8 pk of 5pc each	1	23
		1	23
		1	23
		1	23
		1	23
		1	23
		1	23
20	Paper Chromatography cabinet made of singal piece bakelite moulding the inner size of cabinet 1A 5x3x7.5 inch + 2mm with front side glass door with stainless steel solvent pt having working capacity of 50 ml with S.S. Hanger, chromatography paper 10x18cm, pk of 10 sheets, glass sprayer glass syringe, TLC, capillary	1	23
21	Balance Electronic Digital cap.750gm L.C.100mg	1	23
23	Distilled water 5lit	2	46
24	Funnel 50mm (borosilicate glass)	5	115
25	Funnel 100mm (borosilicate glass)	5	115
26	Filter paper No. 1 Dia 12.5 cm superior pack of 100 circles	5	115
27	Funnel Stand Plastic 100mm dia	2	46
28	Fusion Tube 2.5" (Ignition) tube pk of 144pc	2	46
29	Glass Tube 7mm 1kg pack (borosilicate glass)	1	23
30	Glass rod 8"	10	280
31	Pipette Serological Graduated 10ml (borosilicate Glass)	5	115
32	Kipps apparatus Plastic Cap 250ml(approx.)	2	46
33	Measuring cylinder 10 ml (borosilicate glass)	4	92
34	Measuring cylinder 50 ml (borosilicate glass)	4	92
35	Measuring cylinder 100 ml (borosilicate glass)	4	92
36	Measuring cylinder 500 ml (borosilicate glass)	2	46
37	Measuring cylinder 1000 ml (borosilicate glass)	2	46
38	Pestal & Motor 4" porcelain	2	46
39	Wash Bottle 250ml. Plastic	5	115
42	Pipette Singal mark 20ml and 25 ml (borosilicate Glass)	25	575
43	Reagent Bottle Narrow Mouth with interchangeable stopper 100 ml (borosilicate Glass)	10	230
44	Reagent Bottle Narrow Mouth with interchangeable stopper 250 ml (borosilicate Glass)	10	230

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Directorate of School Education & Literacy, Laitumkhrach, Shillong-793003,

Ph-0364-2226062, 2225083/, Fax: 0364- 2226062

45	Reagent Bottle Narrow Mouth with interchangeable stopper 500 ml (borosilicate Glass)	5	115
46	Iron stand made of sheet metal base 175x125mm ± 10mm ROD 600mm ± 10mm x 8mm ± 1mm with fisher clamp	5	115
47	Stop Watch Singal Button Mechanical	1	23
48	Spirit lamps aluminum	10	230
49	Spatula Stainless Steel one end spoon 8"	5	115
50	Test tube 15x 125mm±2mm (borosilicate glass) with rim duly packed in a grooved plastic tray of capacity 10 pieces and packed in a 50 pcs. Box	100	2300
51	Test tube 12x75mm±1mm (borosilicate glass) with rim	50	1150
52	Test Tube stand for 15mm diameter test tube 8 hole Plastic	10	230
54	Test Tube brush	10	230
55	Tripod stand 6 inch x4 inch	10	230
56	Triangular File	5	115
57	Trough 30" Neutral Glass	4	92
58	Wire Gauge with frame 4"x4"	10	230
59	Watch Glass ordinary glass 4"	10	230
60	wicks for burner	5	115
62	White Tiles 6"x6"	3	84
63	Atomic model set 23mm diameter +/- 1mm set of 120 balls with 100 locking plugs and Plastic connectors	1	23
64	Stirrer (Neutral Glass)	5	115
66	Volumetric Flask 250 ml and 500 ml	5	115
		5	115
67	Litmus Paper(R/B)	5	115
68	Universal Indicator Paper	5	115
69	Universal Indicator Paper solution (500 ml)	2	46
70	Electric Kettle(1 ltr)	1	23

iii. Combined Zoology & Botany:

Stands Amended as:

Sl.No	Item	Specifications	No per School	Total Nos
1	Digital Hot plate	Regular Model, With 3 Stage Heat Control Switch	1	23
2	Magnetic stirrer	With Hot Plate	1	23
3	Water testing Kit (Chemical)WT 023		1	23
4	Wide field student microscope		1	23
5	Soil Testing Kit(Chemical) K054	Max Make , Four Parameter	1	23

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6	Heamocytometer	Includes Counting chamber with RBC & WBC Tubes, Ordinary Quality (In Velvet Box)	1	23
7	Haemoglobinometer		1	23
8	Enamel tray	6"x4"	5	115
9	Laboratory thermometer		5	115
10	Maximum and minimum thermometer	Plastic Base	1	23
11	PH meter electrode		2	46
12	Projection slides of life history of insects		1	23
13	Micromodel of DNA		1	23
14	Mocromodel of Replication of DNA		1	23
15	Micromodels of linkage of Nucleotide		1	23
16	Periodic Table Chart		1	23
17	hand centrifuge machine (hand driven) 4 tubes	(4 Tubes), Superior Quality HEAVY	1	23
18	Dissecting set "surgeon" brand		2	46
19	Simple microscope	Olympus	2	46
20	Compound microscope(Natural and electrical light)	Olympus	2	46
21	Electrophoresis Kit		1	23
22	centrifuge		1	23
23	Hot plate	Regular Model, With 3 Stage Heat Control Switch	1	23
24	Water bath	Dia,4"(copper)	2	46
25	Soil sieve		5	115
26	Beaker (250ml)	Borosil	1	23
27	Beaker (100ml)	Borosil	1	23
28	Beaker (50ml)	Borosil	1	23
29	Blades	Stainless Steel	1	23
30	Capillary tubes	Borosil	1	23
31	Cavity blocks	Borosil	1	23
32	Cotton roll		1	23
33	Cover slips	Borosil	1	23

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Ph-0364-2226062, 2225083/, Fax: 0364- 2226062

34	Forceps	Stainless Steel	1	23
35	Glass slides	Borosil	1	23
36	Hiclean		1	23
37	Marker pen		1	23
38	Measuring cylinder (1L)	Borosil	1	23
39	Measuring cylinder (500ml)	Borosil	1	23
40	Measuring cylinder (250ml)	Borosil	1	23
41	Measuring cylinder (100ml)	Borosil	1	23
42	Measuring cylinder (50ml)	Borosil	1	23
43	Measuring cylinder (25ml)	Borosil	1	23
44	Needles	Stainless Steel	1	23
45	Ordinary filter paper		1	23
46	pH paper		1	23
47	Scissors	Stainless Steel	1	23
48	Spatula	Stainless Steel	1	23
49	Spirit lamp	Stainless Steel	1	23
50	Thermometer	Borosil	1	23
51	Thread		1	23
52	Whatman No.1 filter paper		1	23
53	Whatman No.1 paper		1	23
54	Test tubes (20ml)	Borosil	1	23
55	Culture tubes (50ml)	Borosil	1	23
56	Mortar and Pestle	Bone China	1	23

iv. Combined Biology:

Stands Amended as:

Sr. No.	Name of Item along with Specification	No per School	Total Nos
1	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Tape Worm	1	23
2	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Silk Moth	1	23
3	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. Dia Cockroach	1	23
4	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Earthworm	1	23
5	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia ascaris Male	1	23
6	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia ascaris Female	1	23

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Directorate of School Education & Literacy, Laitumkrah, Shillong-793003,

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7	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Liver Fluke	1	23
8	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia of lichen	1	23
9	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of epiphytic root	1	23
10	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of bladder wort	1	23
11	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of eichhornia	1	23
12	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of hydrilla	1	23
13	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of certophyllum	1	23
14	Preserved Speciman In Jar size 15cm+/-1cm height x 5cms +/- 1cm. dia Jar specimen of salvinia	1	23
15	Preserved material of Marchantia (liver wort)	2	46
16	Preserved material of Funaria	2	46
17	Preserved material of Fern	2	46
18	Microscopic Glass Slide 76x26x1.1mm ISI	5	115
19	Marked pk of 50 slides	5	115
20	Petri dishes 100mm Borosilicate Glass	6	168
21	Petri dishes 90mm Plastic Polypropylene	5	115
22	Cover slips 18x18mm pack of 10gm	4	92
23	Forcep 6" with fine tip (Stainless steel)	5	115
24	Needles with plastic handle 4"	5	115
25	Test Tube stand for 15mm diameter test tube 8 hole Plastic	5	115
26	Dropper Glass 4" with rubber teat	5	115
27	Test Tube Holder Wooden Handle size 175mm +/- 15mm	5	115
28	Permanent slides of Bacteria Bacillus	2	46
29	Permanent slides of Bacteria Coccus	2	46
30	Permanent slides of Bacteria Spirillum	2	46
31	Permanent slides of Bacteria Vibrio	2	46
32	Permanent slides of Algae oscillatoria	2	46
33	Permanent slides of Algae spirogyra	2	46
34	Permanent slides of Fungi rhizopus	2	46
35	Permanent slides of Fungi Yeast	2	46
36	Permanent slides of L.S.Male Shoot-Funaria	2	46
37	Permanent slides of L.S.Female Shoot-Funaria	2	46
38	Permanent slides of Amoeba	2	46
39	Permanent slides of Plant Tissue Parenchyma	2	46
40	Permanent slides of Plant Tissue Collenchyma	2	46
41	Permanent slides of Plant Tissue Sclerenchyma	2	46
42	Permanent slides of Animal Tissue Epithelial	2	46

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43	Permanent slides of Muscular Tissue Striated	2	46
44	Permanent slides of Muscular Tissue Non Striated	2	46
45	Permanent slides of Muscular Tissue Cardiac	2	46
46	Permanent slides of Nerve fiber	2	46
47	Permanent slides of Mitosis all stages	1	23
48	Permanent slides of Meiosis all stages	1	23
49	Permanent slides of T.S.Dicot Stem and monocot stem	2	46
50	Permanent slides of T.S.Dicot Root and monocot Root	2	46
51	Permanent slides of Mammalian blood smear	2	46
52	Permanent slides of pollen germination	2	46
53	Permanent slides of testis (mammalian)	2	46
54	Permanent slides of ovary (mammalian)	2	46
55	Permanent slides of blastula (amphibian ,mammal)	2	46
56	Permanent slides of ent amoeba histolytica, plasmodium, ringworm	2	46
57	Permanent slides of fungi - genra (Microsporium , Trichophyton & Epidermophyton)	3	84
58	Charts showing Human Physiology (Reproductive system male & female ,respiratory & circulatory system , digestive system ,skelton system) size 50x75 cm \pm 2cm both side laminated with plastic rollers	4	92
59	Charts of animal like hornedtoad , Kangaroo rat, camel size 50x75 cm \pm 2cm both side laminated with plastic rollers	1	23
60	Charts of Starfish,Rohufish, Frog , Freshwater Fish, Marine bony fish (Lophius) size 50x75 cm \pm 2cm both side laminated with plastic rollers	1	23
61	Charts size 50x75 cm \pm 2cm both side laminated with plastic rollers showing analogous & Homologous organs in various plants & animals	1	23
62	Human Skelton made of fiber glass, disarticulated , stand size 5 feet	1	23
63	Leishmans stain 250 ml	1	23
64	Safranine 50gm	1	23
65	Glycerine 500 gm	1	23
66	Sodium Chloride 500gm	1	23
67	Cobalt Chloride 100gm	1	23
68	Benedict Solution 250ml	2	23
69	Fehling Solution No1 500ml	1	23
70	Fehling Solution No2 500ml	1	23

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Ph-0364-2226062, 2225083/, Fax: 0364- 2226062

71	Biuret Reagent 200ml	1	23
72	Millions Reagent 125ml	2	46
73	Sudan III 100ml	1	23
74	Sodium Hydroxide pellets 250gm	2	46
75	Iodine 50gm	1	23
76	Acetone 500ml	1	23
77	Petroleum Ether 60-80 deg C 500ml	1	23
78	Phenol Red 50gm	1	23
79	Boric Acid 250gm	1	23
80	Potassium Chloride 250gm	1	23
