

FINAL EVALUATION REPORT

(As Per Rule 35 of PP Rules, 2004)

1. Name of Procuring Agency: Pakistan Science Foundation.....
2. Method of Procurement: Single Stage Two Envelope.....
3. Title of Procurement: Purchase of STEM Teachers Training Activities Material
4. Tender Inquiry No.: PSF/STEM/171/2023-24.....
5. PPRA Ref. No. (TSE): TS547550E.....
6. Date & Time of Bid Closing: 02nd September, 2024 at 11:00 hours local time.....
7. Date & Time of Bid Opening: 25th September, 2024 at 11:30 hours local time.....
8. No of Bids Received: 02.....
9. Criteria for Bid Evaluation: "Lowest qualified bidder as per the Financial Bid".....
10. Details of Bid(s) Evaluation: As Under.....

Name of Bidder	Marks		Evaluated Cost	Rule/Regulation/SBD*/Policy/ Basis for Rejection / Acceptance as per Rule 35 of PP Rules, 2004.
	Technical (if applicable)	Financial (if applicable)		
M/s Global Enterprises	X	✓	7,362,846/-	Technically qualified and submitted lowest financial bid.
M/s Hamza Enterprises	X	X	8,169,557.72/-	Technically qualified and submitted highest financial bid.

Lowest Evaluated Bidder M/s Global Enterprises

9. Any other additional / supporting information, the procuring agency may like to share.

Comparative Statement is attached

Signature

Official Stamp

Dr. Saima Huma Tanveer
Project Director (STEM)
Pakistan Science Foundation
Ministry of Science & Technology
Islamabad

***Standard Bidding Documents (SBD).**

COMPARATIVE STATEMENT:

Tender "STEM Teachers Training Activities

03.01.2025

Computer Science Experiments Material				M/s. Global Enterprises				M/s. Hamza Enterprises			
Sr. #	MODULES	Materials	Quantity Required	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value
1	Home Automation System using Bluetooth	• Arduino Uno • Bluetooth Module • Relay Module • Wires • Bulb App: https://drive.google.com/file/d/1WBwgVSu3P_bCXRcet4jRck-j3rNE6FOv/view	10	3,200	576	3,776	37,760	3,000	540	3,540	35,400
2	Voice Controlled LED's	• 1 x Arduino Uno Board • 1 x USB cable • 1 x Bread Board • 1 x Bluetooth • 3 x LED (Red, Green, Blue) • 4 x Jumper wire (Male to Male) • 4 x Jumper wire (Male to Female)	10	3,200	576	3,776	37,760	3,000	540	3,540	35,400
3	Controlling Multiples devices (LED) using IOT	• ESP8266 boards • LED • Relay Module • Breadboard • Wires	10	2,700	486	3,186	31,860	2,400	432	2,832	28,320
4	Water Level Indicator with Arduino	• Arduino Uno Based • https://github.com/passion-tech/Hello-tech/blob/master/Water_Level_Sensor_with_LED.ino • Breadboard • Jumper Wires • LED • Resistor • Water Level Sensor	10	2,500	450	2,950	29,500	2,500	450	2,950	29,500
		• IOT based • Node Mcu									

5	IoT-based Anti-theft alarm	• Bulb and Holders • PIR Sensor • Relay • Transistor BC 547 • Diode 1N4007 • Node Mcu • Bulb and Holders • PIR Sensor • Relay • Transistor BC 547 • Diode 1N4007	10	2,500	450	2,950	29,500	2,300	414	2,714	27,140
6	Line follower robot	• Arduino Uno • Motor Driver Shield • Wheels (4x) • TT Gear Motor • Infrared Sensor • 18650 Li-ion Battery and holders • Acrylic Sheet • DC Power Switch • Jumper wires	10	4,500	810	5,310	53,100	4,000	720	4,720	47,200
7	AI-based Smart Gate	• Arduino Board • Ultrasonic Distance Sensor • Motor Driver Module • DC or Servo Motor • Gate (or prototype gate) • Power Supply	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
8	Indicating distance between two objects using LED's	• Arduino UNO • Ultrasonic sensor HC-SR04 • Jumper wires • LEDs	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
9	Make Your own Digital stop watch	• Alphanumeric LCD (16 x 2) • Arduino UNO • Slide Switch • button • Jumper Wire • Breadboard	10	2,500	450	2,950	29,500	2,000	360	2,360	23,600
		• Arduino Uno • Jumper wire • LCD (16x2) with I2C Module									

10	Building a Digital Clock with Arduino and RTC Module	• RTC Module • Three Resistors (~330 Ohms) • Breadboard • https://core-electronics.com.au/guides/accurate-clock-arduino-uno/ • Three Push Button	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
11	ATM Machine Working Model	• Acrylic Sheet • Gear System • Ice-cream Stick • Glue Gun • DC motor • syringe • Cardboard • Bottle Cane • Resistor • LEDs • Jumper Wires	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
12	Hand gesture control wheelchair for disabled people	• https://projecthub.arduino.cc/afsh_ad/hand-gesture-control-wheelchair-for-disabled-people-6a299f • nRF24 Module (Generic) • DC Motor, 12 V • Jumper wires (generic) • Arduino Nano R3 • Dual H-Bridge motor drivers L298	10	6,000	1,080	7,080	70,800	5,000	900	5,900	59,000
13	Smart Glasses for Blind Prototype	• Ultrasonic Sensor - HC-SR04 (Generic) • Arduino Nano • Jumper wires (generic) • https://projecthub.arduino.cc/nehiludrhj/smart-glasses-for-blind-prototype-3eb649	10	3,000	540	3,540	35,400	2,500	450	2,950	29,500
	Arduino Speed	• Male/Female Jumper Wires • IR proximity sensor • Arduino Nano • USB-A to Mini-USB Cable									

14	Arduino Speed Object Detector	• RGB Diffused Common Cathode • https://projecthub.arduino.cc/yashastronomy/arduino-speed-detector-55410d	10	2,700	486	3,186	31,860	2,000	360	2,360	23,600
15	Make a Siren Using Arduino	• Arduino UNO • Jumper wires • 10 LEDs with 220ohm resistors • 1 Passive buzzer/speaker with a resistor value 330-1Kohm • 1 push button and 10K resistor	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
16	Train accident Prevention project	• Arduino Uno • 7.4v Battery with Cable • Ultrasonic sensor • Sun board sheet • 4x wheels • 6x Led lights • 6x Buzzer	10	5,000	900	5,900	59,000	4,000	720	4,720	47,200
17	Arduino Calculator	• Jumper wires (generic) • 9V battery (generic) • Breadboard (generic) • 4x4 Keypad • 16x2 Character Display • Arduino UNO	10	2,700	486	3,186	31,860	2,500	450	2,950	29,500
Total			170	54,000	9,720	63,720	637,200	47,700	8,586	56,286	562,860

Electronics Experiments Material

Sr. #	MODULES	Materials	Quantity Required	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value
1	Up-down Counter	1. CD40110B Dual-Clocked Up/Down Counter IC (2) 2. Resistors: 10K Ω (3), 47K Ω (1K) 3. 4007 Diode (1) 4. Capacitors: 33 μ F (1), 103 μ F (2) 5. Push Buttons (3) 6. 9V Battery (as required) 7. VEROBOARD/ PCB	10	1,000	180	1,180	11,800	850	153	1,003	10,030
		1. Jumper wire 2. LED MatLogic Gate ICs 3. Arduino			Page 4 of 37						

2	Logic Gates	4. Breadboard 5. Push Buttons and Switches 6. 7-Segment Displays 7. Transistors 8. Potentiometers 9. Capacitors and Diodes 10. DC power supply Adapter 11. VEROBOARD/PCB	10	2,500	450	2,950	29,500	2,500	450	2,950	29,500
3	Scrolling Text	1. Jumper wire 2. 32×8 RGB LED Matrix x 3. Arduino 4. Breadboard 5. VEROBOARD 6. DC power supply Adapter	10	3,500	630	4,130	41,300	3,500	630	4,130	41,300
4	Lucky Circle	1. 10K Resistor (1) 2. 4017 Decade Counter/Divider IC 3. 1M Resistor (1) 4. 4069 IC (1) 5. 10K Resistor (3) 6. LEDs (10) 7. 270K Resistor (1) 8. Push Button (PUSH BATON) (1) 9. 2M2 Resistor (1) 10. 9V Battery Clip (1) 11. 4001 IC (1) 12. 4148 Diode (1) 13. 103 Capacitor (1) 14. 1μF Capacitor (1) 15. 220μF Capacitor (1) 16. C945 Transistor (2)	10	1,000	180	1,180	11,800	850	153	1,003	10,030
5	Traffic light	1. 10K ohm Resistor 2. Diode 1N4007 3. Diode 1N4148 4. Capacitor 22uF, 16V 5. Capacitor 4.7uF, 25V 6. Variable Resistor (VR) 200k ohms 7. 5mm LEDs 8. Transistor C945 9. Timer IC NE555 10. Decade Counter IC CD4017 11. Printed Circuit Board (PCB)	10	1,000	180	1,180	11,800	850	153	1,003	10,030

6	Fire Alarm	1. 1K Resistor (x3) 2. 15K Resistor 3. 4.7K Resistor 4. 10K Resistor (x2) 5. 150K Resistor 6. 100K Variable Resistor (VR) 7. 1N4007 Diode 8. LED (x2) 9. C945 Transistor 10. 100µF Capacitor 11. 741 Operational Amplifier IC 12. 100K NTC Thermistor	10	1,000	180	1,180	11,800	850	153	1,003	10,030
7	Smart glasses for Blind	1. HC-SR04 - Ultrasonic Sensor X 3 2. Buzzer 3. DFRobot DF Player mini-X 1 4. Arduino UNO X 1 5. 3.5mm Audio jack X 1 6. Vibration motors X 3 7. USB to Serial Converter like FTDI 8. Slide Switch X 1 9. 5V DC Battery 10. Glasses	10	3,500	630	4,130	41,300	3,500	630	4,130	41,300
8	Chair Swing	1. DC gear motor 2. Plastic star (roof structure) 3. Five plastic toy chairs 4. 9V battery 5. Common pins 6. On/off button	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600
9	Lock System	1. Resistors: 100KΩ (6), 10KΩ (1), 1KΩ (1) 2. Diodes: 4007 (2), 4148 (9) 3. Capacitor: 33µF (1) 4. Transistor: C945 (1) 5. IC: 4017 Decade Counter (1) 6. Relay: 12V (1) 7. LED (1) 8. Push Buttons (9)	10	1,200	216	1,416	14,160	1,300	234	1,534	15,340
10	Traffic Light using	1. Resistor 2. Capacitor 3. Diode 4. Variable Resistor	10	1,000	180	1,180	11,800	850	153	1,003	10,030

10	ICS	5. Transistor 6. VEROBOARD 7. IC 555 8. LEDs	10	1,000	180	1,180	11,800	850	153	1,003	10,030
11	Rain Alarm	1. Resistors: 1K (x2), 1K5 (x2), 22K 2. Diodes: 4007 3. Capacitor: 47µF 4. Transistors: C945 (x3) 5. Variable Resistor (VR): 22K 6. Light Emitting Diode (LED) 7. Buzzer	10	1,000	180	1,180	11,800	850	153	1,003	10,030
12	Water Level	1. Resistors: 10K (4x), 270K (4x), 100R (4x) 2. Diodes: 1N4007 (1x) 3. Capacitors: 33uF (1x) 4. Transistors: C945 (4x) 5. Integrated Circuit (IC): CD4011 (1x) 6. Light Emitting Diodes (LEDs): 16x	10	1,000	180	1,180	11,800	850	153	1,003	10,030
13	LED Distance	1. ULTRASONIC SENSOR 2. DC Power Supply Adapter 3. Arduino NANO 4. LEDs 5. TRANSISTOR 6. Jumper wire 7. Breadboard 8. VEROBOARD 9. RESISTORS (as required)	10	3,000	540	3,540	35,400	3,000	540	3,540	35,400
14	Series & Parallel	1. Two AA batteries 2. Insulated wire 3. Two bulbs 4. Two bulb holders 5. Two battery holders	10	1,000	180	1,180	11,800	850	153	1,003	10,030
15	Electronic Toss	1. 100K Resistor (1) 2. 4017 Decade Counter/Divider IC 3. 1M Resistor (1) 4. 4069 IC (1) 5. 10K Resistor (3) 6. LEDs (10) 7. 270K Resistor (1) 8. Push Button (PUSH BATON) (1) 9. 2M2 Resistor (1)	10	1,000	180	1,180	11,800	850	153	1,003	10,030

		10. 9V Battery Clip (1) 11. 4001 IC (1) 12. 4148 Diode (1) 13. 103µF Capacitor (1) 14. 1µF Capacitor (1) 15. 220µF Capacitor (1) 16. C945 Transistor (2)									
16	Sound Operated Switch	1. 3.3K Resistor (3) 2. 473 Resistor (2) 3. 2.2K Resistor (4) 4. 102K Resistor (2) 5. 1K Resistor (3) 6. 100µF Capacitor (1) 7. 22K Resistor (2) 8. 4148 Diode (3) 9. 10K Resistor (2) 10. 270K Resistor (2) 11. 4007 Diode (2) 12. C945 Transistor (5) 13. 15K Resistor (1) 14. 1K Resistor (1) 15. 200K Variable Resistor (VR) (1) 16. Condenser Microphone (1) 17. 12V Relay (1) 18. LED (1)	10	1,000	180	1,180	11,800	850	153	1,003	10,030
17	Metal Detector	Resistors: 1. 3.3K ohms (3) 2. 47K ohms (4) 3. 22K ohms x 4 4. 150K ohms x 2 5. 5K ohms x 2 6. 100 ohms 7. 33k ohms 8. 1.5k ohms 9. 10k ohms 10. 33 ohms Capacitors: 1. 104 (0.1µF) x 2 2. 103 (0.01µF) x 4 3. 474µFx1 4. 273µFx1 5. 33µFx1 Diode:	10	1,000	180	1,180	11,800	1,100	198	1,298	12,980

		1N4146 Transistors: C945 BC547 x 2									
18	Touch Switch	1. 1K ohms Resistor 2. 10K ohms Resistor 3. 8.2K ohms Resistor 4. 1M ohms Resistor 5. 3.9M ohms Resistors 6. N4007 Diode 7. N4148 Diode 8. 33uF 25V Capacitor 9. 103uF Capacitor 10. 224uF Capacitors 11. C945 Transistor 12. CD4013 Integrated Circuit (IC) 13. 5V Relay	10	1,000	180	1,180	11,800	850	153	1,003	10,030
19	Quiz Project	1. Resistors: Four 470 ohms and eight 10k ohms 2. Capacitors: Four 0.1uF and one 1uF (radial) 3. Diodes: Four 1N4148 4. Battery clip for a 9V PP3 battery 5. Bleeper suitable for 3 to 6V 6. Stripboard 7. Four 8-pin DIL sockets for ICs 8. On/off switch 9. Push switches 10. LEDs 11. 2-core cable 12. Four 555 timer ICs (Integrated Circuits)	10	1,000	180	1,180	11,800	1,100	198	1,298	12,980
20	Trash Bot	1. Trash bin with a lid 2. Arduino NANO 3. Jumper wire 4. Ultrasonic sensor (HC-SR04) 5. Servo motor 5V 6. Breadboards 7. VEROBOARD 8. DC Power Supply Adapter	10	4,000	720	4,720	47,200	3,000	540	3,540	35,400
		1. Speaker: 0.25W, 8 ohms 2. Resistor 220 ohm									

21	Snake Game	3. Arduino 4. VEROBOARD 5. 8X8 LED display 6. TM1637 4-digit display 7. Push Button 8. DC power supply Adapter	10	4,000	720	4,720	47,200	3,500	630	4,130	41,300
22	Tic-Tac-Toe Game	1. Jumper wire 2. Arduino 3. LED Matrix or Display 4. Breadboard 5. Buttons or Keypad 6. Resistors as required 7. VEROBOARD 8. DC power supply Adapter	10	4,000	720	4,720	47,200	3,000	540	3,540	35,400
23	ATM Machine	1. Jumper wire 2. Arduino 3. servo mortor 4. Breadboard 5. LCD 6. Keyboard 7. VEROBOARD	10	4,000	720	4,720	47,200	4,000	720	4,720	47,200
24	Melody Bell	1. Resistors: 4.7K (1x), 150R (1x), 15K (1x) 2. Capacitors: 47µF (2x) 3. Transistors: C945 (1x), C1383 (1x) 4. Integrated Circuit (IC): UM66 (1x)	10	1,000	180	1,180	11,800	850	153	1,003	10,030
25	Code Lock	1. Resistors: 100KΩ (6), 10KΩ (1), 1KΩ (1) 2. Diodes: 4007 (2), 4148 (9) 3. Capacitor: 33µF (1) 4. Transistor: C945 (1) 5. IC: 4017 Decade Counter (1) 6. Relay: 12V (1) 7. LED (1) 8. Push Buttons (9)	10	1,000	180	1,180	11,800	1,000	180	1,180	11,800
	Total		250	46,700	8,406	55,106	551,060	42,700	7,686	50,386	503,860

Biology Experiments Material

[illegible]

1	OSMOSIS	- Measuring cylinder 1000ml - Several potatoes - Apple corer - Sucrose/Glucose - Scale with gram measurements, 6 Boiling tubes/beakers 100ml 3 Spoons, Ruler, - Erasable white board, Pen/Pencil, Timer - Paper towels, 6 Graph paper, 3 Wax pencil - Potato peelers	10	5,000	900	5,900	59,000	9,040	1,627	10,667	106,672
2	RATE OF PHOTOSYNTHESIS	- Aquatic plant - Light source (lamp) - NaHCO₃ 100g - Water bath - Syringe - Meter ruler - Medical Thermometer - Beaker - Boiling tube - Stopper - Pipe, rubber tube - Stopwatch - Distilled water - Potometer	10	5,500	990	6,490	64,900	5,110	920	6,030	60,298
3	SCIENTIFIC METHOD	- Changing of the leaves 3 green leaves from the same tree - Rubbing alcohol 1 glass jar - Plastic wrap - Paper Strip from a coffee filter - Small bowl with hot water in it - Sprouting Seeds - Sponge	10	3,000	540	3,540	35,400	4,445	800	5,245	52,451

		• Shallow dish • Seeds • Magnifying dish • Blossoming Beans • 1 pinto bean • 1 Ziploc bag • 1 paper towel • Spray bottle for holding water									
4	TRANSPORT IN PLANTS	Potometer Lamp Ruler, Plant shoot Scalpel, Beaker 100 ml Capillary tube Stopwatch • Vaseline	10	2,500	450	2,950	29,500	3,115	561	3,676	36,757
5	MITOSIS AND MEIOSIS	• good quality plastic • acrylic plates for representing cell and different structures.	10	1,500	270	1,770	17,700	1,700	306	2,006	20,060
6	DEFORESTATION	• Acrylic sheet for making platform of robot. • Arduino based project.	10	67,000	12,060	79,060	790,600	10,000	1,800	11,800	118,000
7	NUTRITION IN MAN	• Acrylic sheet. • Metallic ruler for percentage representation. • Plastic made shapes of different food items	10	3,500	630	4,130	41,300	5,000	900	5,900	59,000
8	MICROSCOPY AND STRUCTURE OF PLANT AND	Forceps Scalpel Coverslip Slides Safety goggles lab coat microscope toothpicks iodine stain onion Marker pen	10	20,000	3,600	23,600	236,000	20,320	3,658	23,978	239,776

	OF PLANT AND ANIMAL CELL	Sterile cotton swab Methylene Blue Paper towels The kit shall also contain well prepared specimens of plant and animal cell so that students can compare their own prepared slides with the specimens.									
9	TRANSPORTATION OF FOOD AND WATER	Plant shoot with and without leaves 3 Beakers 100ml 3 Graduated cylinder 100ml 2L Water 6 Teaspoons Food coloring (red, blue, and green), Timer Sharp knife, Microscope 50 Microscope slide, 50 Cover slips Pipette or water dropper Tweezers	10	20,000	3,600	23,600	236,000	20,645	3,716	24,361	243,611
10	BREATHING MOVEMENT	2-liter plastic bottle with cap 2 plastic drinking straws - Two 9-inch balloons 1 larger balloon/stretchable plastic sheet 2 rubber bands	10	800	144	944	9,440	850	153	1,003	10,030
11	WORKING OF BICEPS AND TRICEPS TO MOVE THE ARM	6 rubber bands (a few different sizes) thin rope, 2.5 m string, .5 m scissors paper, 1 sheet springs - one 20-Newton spring scale - ruler 12-inch	10	2,000	360	2,360	23,600	1,820	328	2,148	21,476

12	WRISTWATCH DESIGN FOR VISUALLY IMPAIRED • Guided Research, one per student • Engineering Design Project Packet, one per student • Wristwatch Project Description, one per student • Engineering Design Test, one per student • scissors • ruler, one per student • pencil, one per student • To share with the entire class: • colored pencils or markers • graph paper • drawing paper (enough for the prototype and the final project) • masking tape (enough for the prototype and the final project) • clear tape (enough for the prototype and the final project) • hot glue gun(s) and glue (enough for the prototype and the final project) • assorted cardboard, foam-core board, matting board and cardstock (enough for the prototype and the final project) • assorted lengths of string, ribbon, etc. (enough for the prototype and the final project) • box cutters • tin snips or heavy-duty scissors	10	4,000	720	4,720	47,200	5,000	900	5,900	59,000
	12 Petri dishes									

13	GERMINATION	Viable Seeds (6 different types) 1 roll of Cotton wool 1L Sterile water 0.5 L Oil Arduino Clinostat based Microgravity project for plants.	10	4,000	720	4,720	47,200	7,350	1,323	8,673	86,730
14	DNA EXTRACTION	• 1-3 strawberries. • 10 ml DNA Extraction Buffer • About 20 ml ice cold 91% or 100% isopropyl alcohol • Large Ziplock bags • 1 test tube • 1 beaker 100ml • 1 funnel lined with a moistened paper towel/filter paper • 1 coffee stirrer or transfer pipet • <u>DNA Extraction Buffer</u> • 100 ml shampoo • 15 grams sodium chloride • Water up to 1 liter	10	8,000	1,440	9,440	94,400	8,860	1,595	10,455	104,548
15	YEAST RESPIRATION	1 large test tubes, about 15 cm long and 20 mm in diameter 1 small test tube, about 10 cm long and 8 mm in diameter squares cut from plastic wrap, about 8 cm on a side 12 rubber or cork stoppers, size 2 1 test tube racks to hold large test tubes 12 dropping pipettes five 300-ml beakers	10	7,000	1,260	8,260	82,600	15,262	2,747	18,009	180,092

		1-liter flask 1-liter graduated cylinder 1 lab thermometer 1 kg (package) dry baking yeast 12-ounce bottle molasses (unsulphured) Graph paper									
16	GASEOUS EXCHANGE DURING VENTILATION OF LUNGS	2 boiling tubes/conical flasks 2 glass and 2 plastic delivery tubes rubber bungs each with two holes 1 stop watch short lengths of rubber tubing antiseptic solution 500 ml hydrogen carbonate indicator 500ml	10	3,000	540	3,540	35,400	3,200	576	3,776	37,760
17	ZOMBIE GOT MY LEG	1 package of cardboard interlocking packing pieces, such as the 1 cu ft package 1 moving glass divider kit (cardboard interlocking divider pieces), ~4 pieces of PVC pipe, 6-in and 4-in lengths ~20 wooden dowel rods; ½ in diameter and ~16 in long ~7 wooden flat sticks; ¼ in thick x 2 to 4 in wide and ~16 in long ~10 ft vinyl tubing; ½ in x 3/8 in size	10	5,000	900	5,900	59,000	6,000	1,080	7,080	70,800
		- Test tubes, at least 1.5 cm ID and 10 cm long (6) 1 Test tube rack - Graduated Pipettes, 3-ml (3) - Access to sink									

18	FACTORS AFFECTING THE RATE OF ENZYMATIC REACTION	• Dishwashing liquid (detergent) (1/2 cup) • 3% hydrogen peroxide • Dried yeast (1 package) • Cups (5) • 6 Measuring spoons (teaspoon and tablespoon) • Spoons or spatula for mixing • Metric ruler • Timer • Calculator • Graph paper • Paper • Pen • Paper towels	10	3,000	540	3,540	35,400	3,640	655	4,295	42,952
19	INVESTIGATE ALIEN GENETICS	Printout of Physical Traits Images Printout of Sibling Images Printout of the Alien Genotype and Phenotype Table Construction paper, different colors (orange and green must be included) Scissors Tape Glue Markers, crayons, and coloring pens Pencils Two coins	10	2,500	450	2,950	29,500	3,000	540	3,540	35,400
20	TECHNIQUES USED IN CELL	Microscope with light options: black light, base white light, or both 4 slides 4 slide cover slips 4 onion membrane samples	10	55,000	9,900	64,900	649,000	65,600	11,808	77,408	774,080

20	USED IN CELL BIOLOGY	scalpel tweezers 1 Onion Cell Lab Sheet 1 graph paper 2 sets of personal protection equipment 2 pairs of rubber gloves	10	33,000	3,900	64,900	647,000	65,000	11,808	77,408	774,000
		6 - 50 mL beakers 6 pipettes 2 fl. oz iodine solution (laboratory grade) 1 tbsp turmeric 20 mL isopropyl alcohol 2 fl. oz tonic water 2 fl. oz energy drink 2 fl. oz soft drink box of food coloring samples (0.3 fl. oz; box of 4 colors) 10 fluorescent markers (all same color)									
		2 pairs of rubber gloves for the teacher pliers (for teacher to remove fluorescent marker ink pad) kitchen cutting knife (optional; for teacher only) tablespoon box of tissues · 3-5 black lights									
21	GROWTH RESPONSES IN PLANTS	6 different types of plant seeds A growing plant Plastic zip-lock bags (3) Permanent pen (1) or a pen and tape 6 Paper towels Radish seeds (15) Strong tape	10	4,000	720	4,720	47,200	8,730	1,571	10,301	103,014

		Large cardboard box 3*4ft (1)									
22	DIGESTIVE SYSTEM OF A MAN	scissors white glue tape (cellophane, masking, etc.) pens and pencils paper sheets 10 rulers assorted building materials such as: - balsa wood - construction paper - toothpicks - popsicle sticks - white paper - string - aluminum foil - paper clips - Styrofoam - foam core - film canisters, etc. markers and crayons - hot glue gun	10	4,500	810	5,310	53,100	10,010	1,802	11,812	118,118
23	DISORDERS OF THE IMMUNE SYSTEM	Bowls (8) M&M's candies (24 of each color: red, green, yellow, blue) Six-sided dice (6) - Pencil or pen - Clear tape	10	4,000	720	4,720	47,200	4,090	736	4,826	48,262
		two-liter plastic bottle with cap, 2 plastic drinking straws or 6 inches (15 cm) of tubing (clear flexible tubing works well, 0.5-1.0 cm in diameter)									

24	RESPIRATORY DISORDERS	3 balloons (1 large enough to stretch over bottom of two-liter bottle; 2 smaller ones, representing lungs) 2 rubber bands 2-inch (5-cm) cube of soft modeling clay scissors drill 1 model lung A variety of materials from which students may select to make a face mask filter, such as white paper, cotton balls, coffee filters, cloth, felt, gauze, foam, cotton batting, string, rubber bands, tape Scissors spray bottle of water timing device	10	6,000	1,080	7,080	70,800	15,870	2,857	18,727	187,266
		Foam core board or heavy cardboard (for creating two model buildings), ~15 x 20-inch [38 x 51-cm] sheet (which is half of the 30 x 40-in [~76 x 102-cm] size foam core board sheets 1-2 pieces of black tar paper, ~ 6 x 6-inch [15 x 15-cm] or use black sandpaper, or black construction paper to represent the black tar surface typically found on city building roofs									

25	HUMAN IMPACTS ON ENVIRONMEN T	1-2 pieces of sod (turf) and/or other sod or moss- like plants, ~ 6 x 6-inch [15 x 15-cm] piece 1 piece of plastic sheeting (for roof deck insulation and waterproofing layer), 30 x 30- cm duct tape and hot glue gun X-ACTO knife, utility knife and scissors 2 thermometers (at least one long thermometer so you can access the interior of the model structures) 1 heat lamp 1 electric fan timer or stop watch 10 paper sheets pencils 4 sheets of graph paper • soil Two foam core board (or heavy cardboard), ~ Two black tar paper Two pre-cut sod pieces (15 x 15cm), ~ plastic wrap for more waterproofing membrane material duct tape hot glue gun sticks	10	7,000	1,260	8,260	82,600	26,000	4,680	30,680	306,800
	Total		250	247,800	44,604	292,404	2,924,040	264,657	47,638	312,295	3,122,953

Chemistry Experiments Material

Sr. #	MODULES	Materials	Quantity Required	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value
		1. Safety Wear 2. Beaker 100ml (1)									

1	Electro etching	3. DC power (4 regular AA battery cells) (1) 4. Electrode (1) 5. Single Hole Electric Discharge Machine with Copper Tube Electrode Drill Bit 6. Sodium Chloride 500mg 7. Sand Paper (1) 8. Steel plate for electro etching (1) 9. Stickers pasting on the electrode (1) 10. Cotton small roll 11. Crocodile Clamps for connection securing (4)	10	5,500	990	6,490	64,900	7,905	1,423	9,328	93,279
2	Boyles Law	1. Syringe 60mL (2) 2. Fg Balloons 3. Water bottle 4. Food Color	10	1,500	270	1,770	17,700	1,520	274	1,794	17,936
3	Atomic Model	Atomic Model 3D	10	3,500	630	4,130	41,300	18,000	3,240	21,240	212,400
4	Periodic Table	1. Periodic Table with Velcaro 2. Or a Periodic table with acrylic sockets and small boxes	10	1,000	180	1,180	11,800	1,650	297	1,947	19,470
5	Magnetic Separator	1. Hollow plastic barrels open at two ends (two) 2. Cardboard 4*4ft 3. Strong magnets (Four) 4. Chart Paper (10) 5. Wooden Sticks 6. Glue gun (1) 7. Kebab Sticks (1) packets 8. Scissors (1) pair	10	4,000	720	4,720	47,200	8,640	1,555	10,195	101,952
6	HYDROCARBON S	1. Ball and stick model molecule with the molecular modeling	10	18,000	2,240	21,240	212,400	19,500	3,510	23,010	230,100

		Old Nobby, or HGS Polyhedron									
7	HYDROCARBONS IN OUR DAILY LIVES	1. Tooth pick 2. Clay dough	10	400	72	472	4,720	480	86	566	5,664
8	Magical liquid	1. Flask with cork 2. Dropper 3. Cork (bottle cap) 4. Water 5. Sodium hydroxide 500mg 6. Glucose 500mg 7. Methylene blue 500mL 8. Measuring Cylinder 25ml 9. Beakers 250ml 10. Volumetric flask 250ml	10	4,000	720	4,720	47,200	3,167	570	3,737	37,371
9	Electrochemical cell	1. safety goggles (one pair per student) 2. gloves (one pair per student) 3. 2 beakers (500 ml) (1) 4. graduated cylinder (250 ml) (1) 5. Voltmeter (1) 6. copper sulfate (CuSO ₄) solution (1.0M, 250 mL) 7. zinc sulfate (ZnSO ₄) solution (1.0M, 250 mL) 8. 2-4 pieces of electrical wiring each with alligator clips 9. Copper electrode (2) 10. Zinc electrode (2) 11. sodium chloride (NaCl) solution (500 mg) 12. pipette (plastic or glass) (2) 13. 20-cm filter paper strips OR filter paper folded to ~1 cm thick and long enough to touch the liquids in each 250 mL beaker	10	5,000	900	5,900	59,000	10,799	1,944	12,743	127,428

		14. LED-emitting light (4)									
10	Solar Cell	1. mini solar PV panel 2. piece of foam core board, on which to tape the solar panel 3. 2 small alligator clamps 4. a single light, such as a small Christmas tree light 5. a voltmeter 6. graph paper and pencils 7. measuring ruler 8. ¼-inch-thick foam core board, pre-cut into sets of wall and roof pieces that form variously-sized structures (different for each team), 9. cardboard, for plots of land; suggested size: ~24 x 24 in (~61 x 61 cm), 10. acrylic paint and paint brushes, 11. duct tape 12. scissors 13. light, small motor or buzzer 14. Xacto™ knife (and blades) 15. hot glue gun and glue sticks	10	4,500	810	5,310	53,100	5,000	900	5,900	59,000
11	Green house	1. 6 acrylic squares, approximately 10 to 12 inches (25 to 30-cm) per side 2. hot glue gun and glue sticks 1 3. soil and plant 4. thermometer digital (2) 5. clear, wide strapping tape (1) 6. saws, to cut acrylic or Plexiglas (1)	10	4,000	720	4,720	47,200	13,050	2,349	15,399	153,990

12	Galvanization/Corrosion Resistance	1. Safety Wear 2. Metal Object to Be Plated (Must be Steel) 3. A Power Supply (3v-6v) 4. Zinc Sulfate 5. Water 6. A Beaker (Glass or Plastic Object Can Be Used Instead) 7. Zinc Metal (Can Be Found Inside Zn-C Batteries) 8. Sand Paper (120) 9. A Tissue Paper 10. Wires	10	6,500	1,170	7,670	76,700	15,795	2,843	18,638	186,381
13	Water Filtration unit	1. Filtration Assembly 2. activated charcoal 3. gravel, 4. sand (coarse and / or fine), 5. cotton balls 6. Filter papers pore size 190 7. Filter papers pore size 150 8. Scissor 9. Measuring cup 10. Spoon 11. Stopwatch or clock with a second hand 12. Pencil and paper 13. Coffee Filter	10	17,000	3,060	20,060	200,600	18,570	3,343	21,913	219,126
14	Corrosion Prevention	1. Test Tubes 2. Test Tube Stands 3. Oil 4. CaCl ₂ 5. Water 6. Nails (Galvanized)	10	2,000	360	2,360	23,600	1,770	319	2,089	20,886
		1. Measuring cup glass (500ml) (1)									

15	Turn Milk into Plastic	2. Milk (enough for each group of students to have 1 cup) 3. Stovetop/ heating mentle 1 4. Thermos (1) 5. White vinegar 1L 6. Work surface that is safe to get damp Aesbestos 1(2*2ft) 7. Styrofoam or other heat-resistant cup 6 8. White or distilled vinegar 1L 9. Paper towels 1roll 10. Spoon (2) 11. food coloring, (1) packet 12. glitter, or markers (1) packet	10	18,000	3,240	21,240	212,400	24,660	4,439	29,099	290,988
16	Paper Chromatography	1. Beaker 3 100mL 2. Ink red and blue 3. Filter paper strips/ Rectangular 4. Filter paper round 5. Plant 6. Ethanol 500ML	10	3,000	540	3,540	35,400	3,405	613	4,018	40,179
17	Simple Distillation Assembly	1. Flask Round bottom---- 250 ml 2. Condenser 1----- fits in the Round bottom flask 3. Iron stands with clamps (02) 4. Hot plate (1) Or Burner or Spirit lamp with Spirit (1) 5. Iron Bowl (1) 6. Gas pipes 2 meter 7. Conical flask (1) 8. Collecting duct (2)	10	25,000	4,500	29,500	295,000	30,545	5,498	36,043	360,431

		9. T- for distillation column (2) 10. Thermometers (2)									
18	Invisible Inks	1. Safety Wear 2. Beakers 6 small, 3. Cotton swabs 4. Pipette (2) 5. Spatula (1) 6. Glass rods (2) 7. Index card, One packet 8. Pencil, One packet 9. Lemon juice 1L 10. Ammonia-based glass/window cleaner 1L 11. vinegar 1L 12. Baking soda 500mg 13. Red cabbage juice 1L	10	5,500	990	6,490	64,900	6,865	1,236	8,101	81,007
19	Design a fuel cell	1. Dilute sulphuric acid, 2. Small fan, 3. voltmeter, 4. ammeter, 5. several wires, 6. glass tube, 7. graphite electrode, 8. power supply.	10	3,500	630	4,130	41,300	5,730	1,031	6,761	67,614
20	Lead Acid Battery	1. Lead Acid battery 2. Electric fan 3. Crocodile clamps	10	2,500	450	2,950	29,500	4,460	803	5,263	52,628
21	Organic Ink	1. Powdered activated charcoal 500mg 2. Water 3. Glass bowl for mixing 1 4. Spatula 1 5. Droppers 5 6. Ink pens 1 7. Beakers 6 small 8. Red Cabbage 9. Beetroot 10. Spinach	10	3,500	630	4,130	41,300	3,940	709	4,649	46,492
		1. activated charcoal 2. gravel,									

22	DIY Water Filtration	3. sand (coarse and / or fine), 4. cotton balls 5. Filter papers pore size 190 6. Filter papers pore size 150 7. Bottles 250mL 8. Scissors 1. Measuring cup 2. Spoon 3. Stopwatch or clock with a second hand 4. Pencil and paper 5. Coffee Filter	10	4,000	720	4,720	47,200	4,365	786	5,151	51,507
23	Red Cabbage Chemistry	1. Eight small beakers 100ml 2. Acetic acid 1L 3. Lemon juice 1L 4. Milk, 5. 7-up or sprite, 6. Sodium carbonate 500mg 7. Sodium hydroxide 8. Glint glass cleaner, and 9. Red cabbage juice indicator (prepared by teacher, see below), respectively 10. 7 pH indicator strips 11. Red cabbage	10	4,500	810	5,310	53,100	5,915	1,065	6,980	69,797
	Total		230	146,400	26,352	172,752	1,727,520	215,731	38,832	254,563	2,545,626

Math Experiments Material

Sr. #	MODULES	Materials	Quantity Required	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value
	How to Make a Working Model of	1. 2 square cardboard 20cm × 20cm 2. 2 rectangular cardboard 38cm × 20cm, 30cm × 20cm 3. 3 cardboard stripes 2cm × 30cm, 2cm × 24cm, 2cm × 18cm 4. 1 OHP sheet 5. 250g rice or pulse									

1	Working Model of Pythagoras Theorem / Math working Model	6. 1 nut & bolt 7. A4 size sheets (4 colours) 8. A3 size sheets (2 blue and 1 yellow) 9. black sketch pen 10. Fevicol 11. paper cutter 12. scissors 13. Glue gun	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600
2	Circle theorems	1. Cardboard 2. Full D 3. Office Pin 4. Rubber Band 5. Chart Paper 6. Color Marker × 4 7. Scale × 1	10	1,200	216	1,416	14,160	1,000	180	1,180	11,800
3	Sets and functions	1. Cardboard 2. Color Chart 3. Scissors 4. Fevicol 5. Glue Gun 6. Syringe 7. Transparent Pipe 8. Black Sketch Pen	10	1,500	270	1,770	17,700	1,600	288	1,888	18,880
4	Trigonometric functions and their graphs	1. Color Paper (any color) 2. Card Board 3. Thermopile 4. Aluminum Wire 5. Graph Paper 6. LED Strip Light × 2 7. Color Marker 8. 9V Battery 9. Switches × 2.	10	1,500	270	1,770	17,700	1,600	288	1,888	18,880
5	Innovative Method of Learning the Concept of Circle and its Theorem	1. Card Board 2. White Chart × 2 3. String × 1 4. Office Pins × 1 Packet 5. Color Chart × 2	10	1,200	216	1,416	14,160	1,100	198	1,298	12,980
6	PROBABILITY	1. Masking tape 2. Dry-erase markers 3. Plastic cups/containers 4. Assorted colored candies or marbles	10	1,200	216	1,416	14,160	900	162	1,062	10,620
7	Working model on	1. Card Board 2. Color Marker × 3	10	1,200	216	1,416	14,160	900	162	1,062	10,620

7	algebraic identity	3. Color Chart $\times$ 3 White Chart $\times$ 1	10	1,200	216	1,416	14,160	900	162	1,062	10,620
8	Sum Should be "26" Puzzle	1. Card Board 2. Color Marker 3. Color Chart	10	1,200	216	1,416	14,160	900	162	1,062	10,620
9	Distance Formula	1. Card Board 2. Graph Paper 3. Color Marker $\times$ 3 4. Color Chart $\times$ 4 5. Office Pins $\times$ 6 6. Favicol	10	1,200	216	1,416	14,160	900	162	1,062	10,620
10	Diagonal Move @ Math Game Puzzle	1. Card Board 2. Color Marker $\times$ 3 3. Color Chart $\times$ 3 4. Favicol	10	1,200	216	1,416	14,160	900	162	1,062	10,620
11	Cartesian co-ordinate math working model.	1. Card Board 2. Color Marker $\times$ 3 3. Color Chart $\times$ 2 4. White Paper 5. Favicol 6. Office Pins Multiple	10	1,200	216	1,416	14,160	1,000	180	1,180	11,800
12	HCF and LCM	1. Wooden Slab or Card Board 2. Rubber Bands 1 $\times$ Packet 3. Office Pin 4. Color Marker $\times$ 4	10	1,200	216	1,416	14,160	900	162	1,062	10,620
13	Sum should be 34	1. Card Board or Thermopole 2. Color Marker 3. Color Chart 4. Favicol	10	1,200	216	1,416	14,160	800	144	944	9,440
14	Venn Diagram Through Activity	1. Color Marker 2. Color Chart $\times$ 7 3. Scissor	10	1,200	216	1,416	14,160	900	162	1,062	10,620
15	Graph type	1. Cardboard 3 $\times$ 3 Feet 2. Color Markers $\times$ 06 3. Glue $\times$ 01 4. White Sheet $\times$ 05 5. Scale $\times$ 01 6. Pencil $\times$ 2 7. Highlighter $\times$ 5	10	1,200	216	1,416	14,160	900	162	1,062	10,620
16	Number System	1. Cardboard 4 $\times$ 4 ft 2. White Sheet $\times$ 3 3. Colored Marker $\times$ 2 4. Glue $\times$ 1 5. Colored Sheet $\times$ 3	10	1,200	216	1,416	14,160	900	162	1,062	10,620

		6. Scale $\times$ 1 7. Highlighter $\times$ 2									
17	Visual Proof of (a + b)²	1. Cardboard 2. White Sheet $\times$ 1 3. Colored Marker $\times$ 3 4. Glue $\times$ 1 5. Scale $\times$ 1	10	1,200	216	1,416	14,160	900	162	1,062	10,620
18	Visual Proof of (a - b)²	1. Cardboard 2. White Sheet $\times$ 1 3. Colored Marker $\times$ 3 4. Glue $\times$ 1 5. Scale $\times$ 1	10	1,200	216	1,416	14,160	900	162	1,062	10,620
19	Day of any Date	1. Cardboard 2 $\times$ 3 2. White Foam Sheet 2 $\times$ 2 3. Scale $\times$ 1 4. Glue $\times$ 1 5. Colored Markers $\times$ 2 6. Cutter $\times$ 1	10	1,200	216	1,416	14,160	900	162	1,062	10,620
20	Exterior angle property - theorem working model	1. Card board 2. Color chart $\times$ 6 3. Scissor $\times$ 1 4. Glue $\times$ 1 5. Glue gun $\times$ 1 6. Glue Stick $\times$ 3 7. Syringe $\times$ 2 8. Transparent paper $\times$ 2 9. Pencil $\times$ 1	10	1,500	270	1,770	17,700	1,500	270	1,770	17,700
21	Proof of Area of Circle	1. Card bord 2. Color marker 3. White chart	10	1,000	180	1,180	11,800	900	162	1,062	10,620
22	Complementary angles working model	1. Card board 2. White Chart $\times$ 1 3. Color chart $\times$ 4 4. Scissors $\times$ 1 5. Glue $\times$ 1 6. Glue Gun $\times$ 1 7. Glue sticks $\times$ 4 8. Syringe $\times$ 2 9. Transparent pipe $\times$ 2ft 10. Pencil $\times$ 1 11. Protractor Geometry $\times$ 1	10	1,500	270	1,770	17,700	1,500	270	1,770	17,700
		1. Cardboard 2. White Marker $\times$ 1 3. Thermocol Sheet 4 X 4									

23	Function Type	4. Scale × 1 5. Color Markers × 10 6. Colored Sheet × 4 7. Glue × 1 8. Thread × 1	10	1,500	270	1,770	17,700	1,000	180	1,180	11,800
	Total		230	29,700	5,346	35,046	350,460	24,800	4,464	29,264	292,640

Physics Experiments Material

Sr. #	MODULES	Materials	Quantity Required	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value	Rate per unit (Excl. Sales Tax) Rs	Sales Tax Rate Rs	Rate per unit (Incl. Sales Tax) Rs.	Total Value
1	PRESSURE IN LIQUIDS / Pascal Law/	1. Card board 3 × 4 2. Thread × 1 3. Scissor × 1 4. Glue gun × 1 5. Glue stick × 6 6. Surgical knife × 1 7. Straw × 6 8. Tape × 1 9. Syringe × 6 10. Plastic pipe × 3ft 11. Paper Holder × 12 12. BBQ sticks × 12	10	2,000	360	2,360	23,600	1,800	324	2,124	21,240
2	Archimedes principle	1. Spring Balance 2. Measure Container 3. Stone 4. Plastic Cup 5. Steel Container 6. Mug with Water	10	1,700	306	2,006	20,060	1,800	324	2,124	21,240
3	Wind Power	1. VonHaus 2000W Heat Gun 2. ArduinoNano 3. 0.96 Inch OLED Module 4. Bread Board 5. Jumper Wires	10	7,000	1,260	8,260	82,600	5,000	900	5,900	59,000
4	DIY Bi-Metallic Strip: Exploring Thermal Expansion	1. Aluminum Tape × 1 2. Foam × 1 3. Glue × 1 4. Copper Strip × 1 5. Matchbox × 1 6. Connecting wires × 4nos 7. Battery holder × 1 8. LED × 2	10	1,000	180	1,180	11,800	1,100	198	1,298	12,980

		9. Scissor × 1 10. Metal rod × 1 11. Safety pin × 2									
5	Force and Motion	1. Plastic Bend Straw 01 2. Rubber Band 01 3. Balloon 01 4. Tooth Pick 01	10	300	54	354	3,540	300	54	354	3,540
6	Making a DIY telescope	1. 25 MM Eyepiece 2. 50 MM Achromat Doublet Lens with 700mm Focal Length 3. 8mm Multicoated Eyepiece 4. Pvc Pipe 5. One joiner according to the Pipe diameter 6. Outside plastic pipe	10	5,000	900	5,900	59,000	6,000	1,080	7,080	70,800
7	TOUCH SENSOR	1. 3.7V Battery 01 2. 4V LED 01 3. Touch Sensor 4. Jumper Wire 5. Beard Board	10	1,000	180	1,180	11,800	900	162	1,062	10,620
8	DIY Wave Machine	1. BBQ Stick 1 pack 2. Tape 3. Jellies 1 pack	10	1,500	270	1,770	17,700	1,500	270	1,770	17,700
9	Electricity Generation	1. Cardboard 2. Scissors × 1 3. Ruler × 1 4. Pencil × 1 5. Glue × 1 6. Wire × 1 7. Tape × 1 8. DC motor × 1 9. Battery × 1 10. Battery Connector × 1 11. LED bulb × 1	10	1,500	270	1,770	17,700	1,500	270	1,770	17,700
10	DIY capacitors	1. Plastic Pipe 3 inch 2. Plastic Piece Square 4 inch 3. Copper Wire 4. Aluminum Tape 5. Color Marker	10	1,000	180	1,180	11,800	700	126	826	8,260

11	FLUID DYNAMICS	1. Syringes × 2 2. Ice cream stick × 6 3. Copper wire × 1 4. Aquarium hose × 1 5. BBQ stick × 1 6. Beverage straw × 1 7. Cardboard 8. Glue stick × 6 9. Glue gun × 1	10	1,200	216	1,416	14,160	1,200	216	1,416	14,160
12	Homemade projector	1. Zero PCB 2. Micro USB Female Port 3. Diode 1N4007 4. 1K Resistor 5. Red LED 6. Micro USB Male Port 7. Push Button Switch 8. Self Lock ON/OFF Switch 9. Keypad Mobile Phone 10. Silver Cake Board 11. 10W + 10 W 4V LED 12. Fresnel Lens 13. 3.7V LI-ION Battery 14. 50mm End Cap 15. 40mm PVC Pipe 16. Projector Lens	10	2,500	450	2,950	29,500	10,000	1,800	11,800	118,000
13	OPERATING LOGIC GATES	1. Bread Board 2. Push Switch × 2 3. Resistor × 6 4. Transistor × 6 5. LED × 2 6. Contacting Wires	10	1,000	180	1,180	11,800	1,200	216	1,416	14,160
14	RLC	1. Capacitor 2. Inductor 3. Iron Core 4. Light Bulb 5. Power Supply	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600
15	Electronic Torque	1. Icecream Sticks Multiple 2. Cardboard 3. DC Motor 01 4. Battery 01 5. Switch 01	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600

		6. Color Chart 04 7. Connecting Wires									
16	Sound Science	1. Steel Wool 2. Paper 3. Test Tube 4. Small burner 5. Air Generator 6. Engine Piston for testing	10	10,000	1,800	11,800	118,000	6,000	1,080	7,080	70,800
17	Electrostatic Charge	8. Red balloon 9. Wool 10. Paper	10	200	36	236	2,360	300	54	354	3,540
18	Ohm's Law	1. Bulb holders × 5 2. Bulb × 5 3. Connecting wire × 2ft 4. Power source	10	1,000	180	1,180	11,800	1,200	216	1,416	14,160
19	Gravity	1. Card board 2. Color paper × 3 3. Scissors × 1 4. Glue stick × 3 5. Glue gun × 1 6. Round magnets × 2 7. Big ball × 1 8. Small ball × 1 9. Color marker × 3 10. Woolen thread × 1 11. Paper cup × 2	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600
20	Steam Engine	1. Cylindrical Box 2. Metal Pen 3. M Seal 4. Plywood 5. Iron Nail 6. Aluminum sheet 7. 3V DC Generator(motor) 8. 1V LED Bulb 9. Kerosene Lamp	10	10,000	1,800	11,800	118,000	7,000	1,260	8,260	82,600
21	Solar Eclipse	1. Cylindrical Box 2. Metal Pen 3. M Seal 4. Plywood 5. Iron Nail 6. Aluminum sheet 7. 3V DC Generator(motor)	10	1,500	270	1,770	17,700	1,600	288	1,888	18,880

		8. 1V LED Bulb 9. Kerosene Lamp/Torch									
22	Solar System	1. Card board 2. Color paper × 5 3. Paint color × 4 4. Paint Burch 5. Glue × 1 6. Glue gun × 1 7. Glue sticks × 3 8. Scissor × 1 9. 9V Batteries 10. Switches 11. LED Lights 12. Connecting wires 13. Serial LED lights 14. Waste LED bulb covers × 9	10	2,000	360	2,360	23,600	2,000	360	2,360	23,600
23	Full Wave Rectifier	1. Step down transformer × 1 2. diode × 2 3. Resistor × 1 4. LED × 1 5. Capacitor × 1 6. Power cable × 1 7. Board × 1	10	1,500	270	1,770	17,700	1,000	180	1,180	11,800
24	Auto Hand Sanitizer	1. Photodiode 2. Ir LED 3. BC-547 Transistor (2) 4. 100 Ω, 15 kΩ Resistor Adpter 5v 5. Mini Water pump with palstic Pipe	10	1,000	180	1,180	11,800	1,000	180	1,180	11,800
	Total		240	59,900	10,782	70,682	706,820	59,100	10,638	69,738	697,380

Generic Components for Teachers Training STEM Activities/Modules

Sr. No	Materials	Quantity Required	Rate per unit (Excl. Sales Tax)	Sales Tax Rate	Rate per unit (Incl. Sales Tax)	Total Value	Rate per unit (Excl. Sales Tax)	Sales Tax Rate	Rate per unit (Incl. Sales Tax)	Total Value
1	Soldering Iron 40W with Stand	25	2,000	360	2,360	59,000	1500	270	1,770	44,250
2	Soldering Paste	25	100	18	118	2,950	50	9	59	1,475
3	Soldering Wire 100g role.	25	500	90	590	14,750	600	108	708	17,700
4	Mini Drill	10	2,500	450	2,950	29,500	2200	396	2,596	25,960
5	Multimeter	10	2,000	360	2,360	23,600	1000	180	1,180	11,800

6	Resistors Package(50-Resistance with 100Pcs Each) Box	10	2,000	360	2,360	23,600	3000	540	3,540	35,400
7	Arduino Uno SMD with Cable	10	1,500	270	1,770	17,700	1600	288	1,888	18,880
8	Arduino Nano with Cable	10	1,200	216	1,416	14,160	1100	198	1,298	12,980
9	Bread Board Jumpers Wire Role	40	500	90	590	23,600	350	63	413	16,520
10	Jumper Wires Set Pack	100	200	36	236	23,600	200	36	236	23,600
11	Battery 9V	100	250	45	295	29,500	300	54	354	35,400
12	Battery Connector	50	50	9	59	2,950	40	7	47	2,360
13	LED 3MM (500Pcs Pack)	10	1,000	180	1,180	11,800	900	162	1,062	10,620
14	Blade Cutter	50	250	45	295	14,750	250	45	295	14,750
15	Glue Stick dozen	30	500	90	590	17,700	500	90	590	17,700
16	Glue Gun	10	700	126	826	8,260	550	99	649	6,490
17	Thread (dozen)	2	600	108	708	1,416	500	90	590	1,180
18	Saw	20	1,000	180	1,180	23,600	1000	180	1,180	23,600
19	Saw Blade	100	150	27	177	17,700	120	22	142	14,160
20	Scale 24 inch (dozen)	2	1,500	270	1,770	3,540	12	2	14	28
21	Steel Scale 12 inch	10	150	27	177	1,770	150	27	177	1,770
22	Double Tape (dozen)	2	1,500	270	1,770	3,540	1400	252	1,652	3,304
23	Led Pencil	200	25	5	30	5,900	30	5	35	7,080
24	Eraser	200	25	5	30	5,900	30	5	35	7,080
25	Sharpener	200	25	5	30	5,900	25	5	30	5,900
26	Color Marker Different Colors(packs)	30	250	45	295	8,850	300	54	354	10,620
27	Color Chart	100	50	9	59	5,900	50	9	59	5,900
28	White Chart	200	50	9	59	11,800	50	9	59	11,800
29	Scissor Small	10	300	54	354	3,540	500	90	590	5,900
30	Scissor Large	10	1,000	180	1,180	11,800	800	144	944	9,440
31	Screw driver Set	10	700	126	826	8,260	800	144	944	9,440
32	Graph Paper	10	50	9	59	590	50	9	59	590

33	Safety Gloves (packs)	4	1,500	270	1,770	7,080	1600	288	1,888	7,552
34	Glue gum Stick (UHU) small	50	150	27	177	8,850	180	32	212	10,620
35	Rubber Band (Packs)	4	150	27	177	708	180	32	212	850
36	Push Buttons	100	15	3	18	1,770	16	3	19	1,888
37	Buzzer	100	40	7	47	4,720	35	6	41	4,130
38	Balloon (pack)	4	250	45	295	1,180	200	36	236	944
39	Office Pin (pack)	4	200	36	236	944	220	40	260	1,038
40	Paper RIM	2	1,300	234	1,534	3,068	1500	270	1,770	3,540
	Total	1889	26,230	4,721	30,951	465,746	23,888	4,300	28,188	444,239

Summary

Sr. No	Materials	Quantity Required	Rate per unit (Excl. Sales Tax)	Sales Tax Rate	Rate per unit (Incl. Sales Tax)	Total Value	Rate per unit (Excl. Sales Tax)	Sales Tax Rate	Rate per unit (Incl. Sales Tax)	Total Value
1	Material Lis of Computer science STEM Activities	170	54,000	9,720	63,720	637,200	47,700	8,586	56,286	562,860
2	Material Lis of Electronics STEM Activities	250	46,700	8,406	55,106	551,060	42,700	7,686	50,386	503,860
3	Material Lis of Biology STEM Activities	250	247,800	44,604	292,404	2,924,040	264,657	47,638	312,295	3,122,953
4	Material Lis of Chemistry STEM Activities	230	146,400	26,352	172,752	1,727,520	215,731	38,832	254,563	2,545,626
5	Material Lis of Math STEM Activities	230	29,700	5,346	35,046	350,460	24,800	4,464	29,264	292,640
6	Material Lis of Physics STEM Activities	240	59,900	10,782	70,682	706,820	59,100	10,638	69,738	697,380
7	Material Lis of Generic STEM Activities	1,889	26,230	4,721	30,951	465,746	23,888	4,300	28,188	444,239
	Total	3,259	610,730	109,931	720,661	7,362,846	678,576	122,144	800,720	8,169,558

Recommendation: The bid documents from four (02) firms named "M/s Global Enterprises and M/s Hamza Enterprises, for the tender "Tender "STEM Teachers Training Activities Material" were received through EPADS portal of PPRA. The firm M/s Global Enterprises quoted lowest financial bid and **STEM Procurement Cell** declared "M/s Global Enterprises" most advantageous bidder.

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