INDIAN INSTITUTE OF TEACHER EDUCATION

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॥ न हि ज्ञानेन सदृशं पवित्रमिह विद्यते ॥

ભાવપત્રક મેળવવા અંગે.

આઈ.આઈ.ટી.ઈ. ગાંધીનગરના સેન્ટર ઓફ એજ્યુકેશનની ફિઝિક્સ લેબ અંતર્ગત કેમિકલ, કોમ્પોનન્ટસ તથા ઇન્સ્ટ્રૂમેન્ટ્સ ખરીદી તેમજ લાઇફસાયન્સ લેબ અંતર્ગત ગ્લાસવેર, બાયોલોજિકલ મટીરિયલ્સ અને કેમિકલ માટેના ભાવ આમંત્રિત કરવામાં આવે છે. ભાવપત્રક મોકલવાની વિગતો આઈ.આઈ.ટી.ઈ. ની વેબસાઇટ www.iite.ac.in પરથી જોવાની રહેશે, બંધ કવરમાં ભાવપત્રક તા. ૧૦/૦૭/૨૦૨૪ (૦૮:૦૦ કલાક) થી તા. ૧૯/૦૭/૨૦૨૪ (૧૬:૦૦ કલાક) સુધીમાં ભરીને આઈ.આઈ.ટી.ઈ. ખાતે પહોચાડવાના રહેશે.

*ભાવપત્રક સાથે ઇન્સ્ટ્રૂમેન્ટ્સ ના **catalogue** આપવાના રહેશે.

સ્થળ :-ગાંધીનગર	કુલસચિવ
તારીખ :-૧૦-૦૭ -૨૦૨૪	આઈ.આઈ.ટી.ઈ.

Physics Lab Requirement

Chemicals, Components, and Instruments requirement for Physics Lab

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- **Required specifications are given below.**
- **For every item must mention following details in your quotation. Also write all specifications of item that you are sending. If not mentioned than quotation will not be accepted and rejected without any notice.**
  1. **Company name**
  2. **Model number**
  3. **Catalogue of that item (attach xerox with quotation)**
- **For practical instruments are preferred of below mentioned companies. You can also provide details and specifications of other standard brands as well in addition with this companies (*Quality Standard will be considered)**
  1. **Omega electronics**
  2. **ASICO (Ambala electronic instruments)**
- **Please provide price of all items if not provided than quotation will be cancelled automatically without any notice.**
- **Kindly send the quotation (Hard copy) of above chemicals/equipment and components as per mentioned address and date(time) in newspaper advertisement.**

Kindly mention name on envelope:

Centre of Education (Physics), IITE

1. List Of Instruments, Components and Glassware

Sr. No.	Equipment/component	Specification	Quantity
1	MEASUREMENT OF RESISTIVITY OF SEMICONDUCTOR BY FOUR PROBE METHOD AT DIFFERENT TEMPERATURES AND DETERMINATION OF THE BAND GAP	The Experimental Set-up consists of the following: 01 Probes Arrangement 02 Sample 03 Oven 04 Thermometer (0-360°C) 05 Four probe Set-up 06 Constant current Generator 07 Oven power supply 08 Digital panel meter (for measuring voltages & current).	1
2	astable and Monostable multivibrator Using 555	To study design, fabricate and test different applications of Timer IC 555. 01 Astable Multivibrator. 02 Mono-Stable Multivibrator. 03 Frequency Divider 04 Linear Ramp Generator. 05 Square Wave Generator. 06 Missing Pulse Detector. 07 Pulse Width Modulation. 08 Pulse Position Modulation. 09 Schmitt Trigger. 10 Sequence Generator. 11 Bistable Multivibrator. 12 Simple Clock Generator	3
3	Astable and Monostable Using Transistor	To study design, fabricate and test using transistor. 01 Astable Multivibrator. 02 Mono-Stable Multivibrator.	3
4	flip flop trainer kit	The Experimental Set-up consists of the following FF on single Board: 1. RS flip flop 2. D flip flop 3. JK flip flop	2

		4. T flip flop 5. Master slave JK flip flop	
5	HALL EFFECT EXPERIMENTAL SET-UP	The complete Experimental Set-up consists of the following 1.1 DIGITAL GAUSS METER 1.2 HALLEFFECT VOLT / CURRENT METER 1.3 HALL PROBE 1.4 CONSTANT CURRENT SOURCE (0 - 4Amp.) 1.5 ELECTROMAGNET	1
6	High Temperature Muffle Furnace	Chamber Size: 9" (D) X 4" (W) X 4" (H) Maximum Temperature: 1200-1400°C Heating element: Silicon Carbide Rods. Thermocouple: Platinum, Rhodium 'R' type thermocouple. Insulation: Vacuum formed ceramic fibre board. The furnace body will be fabricated from mild steel sheet and will be suitably powder coated for an attractive finish. Power supply: 4.5KW, single phase, 230V.	1
7	Prism	Refractive index 1.6 Size 32 X 32 mm. Spectrometer prism For laboratory use	10
8	Digital multimeter	• ¾ Digital Multimeter • 4000 Counts Large LCD Display with Auto/Manual Range • No Power-OFF under natural operation • Data Hold, Max. / Min. Value Hold • Capacitance, Frequency / Duty Cycle, Temperature and Transistor Test	10

			
9	Nose plyer and tester	 	Nose plyer: 1 Tester:2
10	Thermometer	For mercury based 1. -10 C to 150 C – 3 2. -10 C to 200 C – 2 For alcohol based 1. -10 to 150 C - 5	5 mercury based & 5 Alcohol based
11	Copper wire without coating	Diameter (thickness) of wire: 1.5 mm and 2mm In use to find young modulus and other elastic constants in maxwell needle and tortional pendulum	25 meters each
12	silicon crystal in form of chip	2-mm thickness 5x5 cm Surface area 1 p-type and 1 n-type Application: for use in four probe and hall effect	2
13	germanium crystal in form of chip	2-mm thickness 5x5 cm Surface area 1 p-type and 1 n-type Application: for use in four probe and hall effect	2
14	self -adhesive pvc. tap	for electrical use	10

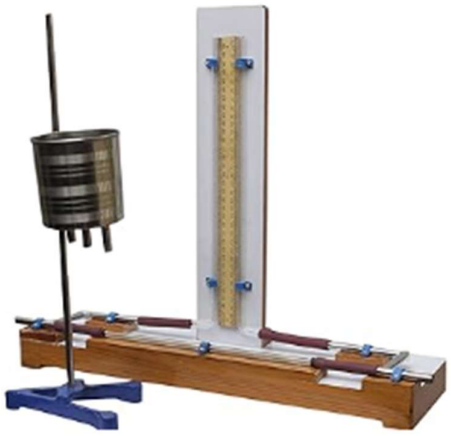
		 Colour: Black	
15	Brass Bob with hook (for experiment of simple pendulum)	10,30,40,70,80 Grams (each 2) 	10 (each 2)
16	spectrometer	Measurement Mode - Lens Spectral Resolution -150 Focal Length - 150 Shape - Round Usage Application – Laboratory Least count – 1 minute Range – 0 to 360 degree 6" dia circle reading 30 seconds. The objectives used in telescope and collimator are achromatic and provided with rack and pinion focusing arrangement. Telescope arm and prism table are provided with fine and coarse adjustment. The prism table is provided with three leveling screws and is engraved with concentric rings & lines.	5
17	diffraction gratting with stands	Size: 63 x 48 mm Lines per inch: 15000 Material: Glass Student Grating	10
18	potentiometer	- On wooden board - length of wire: 10m	1
19	DETERMINATION OF SPECIFIC RESISTANCE OF A MATERIAL AND DIFFERENCE BETWEEN TO SMALL RESISTANCES USING CAREY FOSTER'S BRIDGE	01 The board consists of the following : 1.1 Decade Resistance in ten step 0.1 ohms, Total Resistance 1 ohms. 1.2 Digital Galvanometer 1.3 Wire wound potentiometer mounted with three sockets in place of Rheostat 10E 1W 1.4 Cell Eliminator with switch voltage1V5 substitute Leclanche Cell.	1

		1.5 Unknown resistance wire of two different gauges each of 50cm 02 Carey Foster's Bridge - Four gaps, Sunmica top with sliding jockey OMEGATYPE CFB-182. 03 Weight : 3.5 Kg. (Approx.) 04 Adequate no. of connecting wires, 50cm long. 05 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.	
20	semiconductor characteristic trainer(PN,LED, Zener)	To study the characteristics of the following electronic devices: 01 Germanium and Silicon Diodes. 02 Zener Diodes. 03 Small Signal Bipolar Transistor PNP and NPN. 04 Junction Gate Field Effect Transistor (JUGFET). 05 Uni-Junction Transistor (UJT). 06 Light Emitting Diode (LED). 07 Photo Diode. 08 Photo Transistor. 09 Thermistors N.T.C. and P.T.C. 10 Voltage Dependant Resistor (V.D.R.). 11 Light Dependant Resistor (L.D.R.). 12 Opto-Coupler. 13 DIAC. 14 Silicon Controlled Rectifier (SCR). 15 TRIAC. 16 Varactor Diode (Varicap Diode).	3
21	planks constant using LED Trainer	01 Study of Planck's Constant by means of LED	3
22	energy bandgap of PN junction diode	The board consists of the following built-in parts : 01 2V D.C. at 10mA, regulated Power Supply. 02 Digital Microammeter, 3½ digits having range 200mAD.C. 03 Semiconductor Diode. 04 Thermometer 0-110 °C	3

		05 Oven, Electrically heated to heat the Semiconductor Diode. 06 Mains ON/OFF switch and Fuse. 07 The unit is operative on 230VAC ±10% at 50Hz.	
23	to study characteristics of transistor in CE configuration	**Technical Specification:-** **Analogue Meters :** • Analogue Ammeter 50mA DC. • Analogue Ammeter 250uA/50mA DC. • Analogue Voltmeter 10V DC. • Analogue Voltmeter 1V DC **Power Supplies :** • DC Supply IC Regulated 0-1V DC, 150mA. • DC Supply IC Regulated 0-10V DC, 150mA. • Operated on Mains power 230V, 50Hz +10% **Components are mounted on the panels are :** • Zener NPN Transistor SL100 • PNP Transistor SK100 • Voltage Control through Potentiometer	2
24	to study characteristics of UJT	**Objective:** To plot V-I Characteristics and to measure inter base resistance. **Features :** Instrument comprises of Two DC Regulated Power supplies 0-15VDC/ 150mA & 0-30VDC/150mA, three round meters for voltage & current measurement, one UJT 2N2646 mounted behind the panel, connections of Supplies, Meters & UJT brought out at 4mm Sockets.	2
25	to study the behaviour of ferromagnetic material	- For physics lab practical purpose	1
26	Determination of the Separation Between the Plates of a Fabry Perot Etalon	01 FABRYPEROTETALON 02 SPECTROMETER STANDARD 03 SODIUM LIGHTSOURCE 04 OPTICALSLIT 05 READING LENS 06 SPIRITLEVEL 07 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.	1
27	1/4 watt resistance	0Ω, 0.22Ω, 1Ω, 2.2Ω, 4.7Ω, 6.8Ω, 7.5Ω, 10Ω, 20Ω, 22Ω, 33Ω, 47Ω, 51Ω, 100Ω, 120Ω, 150Ω, 220Ω, 330Ω,	each 25

		390Ω, 470Ω, 510Ω, 680Ω, 1KΩ, 1.5KΩ, 2KΩ, 2.2KΩ, 3KΩ, 4.7KΩ, 5.1KΩ, 5.6KΩ, 7.5KΩ, 8.2KΩ, 10KΩ, 15KΩ, 22KΩ, 33KΩ, 47KΩ, 56KΩ, 68KΩ, 75KΩ, 100KΩ, 150KΩ, 220KΩ, 330KΩ, 470KΩ, 680KΩ, 1MΩ, 2.2MΩ, 4.7MΩ, 5.6MΩ	
28	Digital stop watch	Normal Display : Hour , Minutes , Second and day of week Alarm Time Setting Normal Time Setting SIZE : 10 x 7 x 4 cm  	10
29	Variable resistance (Potentiometer)	1K 5K 10K 20K 50K 100K 250K 500K 1M	each 5
30	Hydrothermal Autoclave Reactor	Hydrothermal Autoclave Reactor with Teflon Chamber of volume 100 ml Working Pressure: 3MPa Heating, Cooling rate: 5 C/ min Maximum temperature: 220 degree	1
31	to determine wavelength using edser butler plate	For physics lab practical purpose	1
32	to determine wavelength using fresenl biprism	For physics lab practical purpose	1
33	Michelson interferometer	For physics lab practical purpose	1
34	Digital vernier caliper	Measurement Range (mm): 0-300 mm Resolution (mm): 0.01 mm Material: Stainless Steel Accuracy: ±0.02 mm Weight: 450 gm Least Count: 0.02 mm	1
35	digital screw gauge	Type: Digital Range: 0 to 25 mm Accuracy: 0.01 mm	1

		Usage/Application Lab Application Laboratory Material Stainless Steel Color Grey Features Digital Measuring Range 0 to 25 mm	
36	To find NA of optical fiber	To study and determine numerical aperture of the PMMA fiber cables and losses due to the 1 meter and 5-meter cables. Ø Built in fixed power of +6V@250mA. Ø 650nm wave length fiber optic LED is provided on the trainer kit. Ø 1 meter and 5-meter optical fiber cables are provided with the kit.	1
37	(UJT IC)	2N 2646	25
38	Not gate ic	Ic No 7404 NOT gate ic	25
39	And gate ic	Ic No 7408 AND gate ic	25
40	Or gate ic	Ic No 7432 OR gate ic	25
41	Nand gate Ic	Ic No 7400 NAND gate ic	25
42	Nor Gate Ic	Ic No 7402 NOR gate ic	25
43	Button Cell Batteries for Watch, Stopwatch	Voltage 1.5 V **Battery Cell Composition** Alkaline **Diameter** 12.35 mm **Width** 1.15 mm **Model** L1131 or equivalent	20
44	Rechargeable Cell (AA & AAA)	Voltage: 1.5 V Duracell Rechargeable Cell	40 (20 AA & 20 AAA)
45	Charger for AA & AAA battery	Duracell charger for AA and AAA battery (1 FOR AA & 1 FOR AAA)	2

46	jumper wire for breadboard	Male to male – 25 Male to female - 25	50
47	Wall charts of different scientists	**Details in charts photograph, some basic details, their inventions, and their contribution in physics** **1. c. v. raman** **2. s. n. bose** **3. homi j Bhabha** **4. Vikram Sarabhai** **5. A. p. j. abdul kalam**	**5**
48	Viscosity Apparatus by Capillary Flow Method	**As per attached image** 	**1**
49	**T**o determine wavelength of **HE-NE laser (with power supply)** Kit	**Power 2mw** **For lab practical use**	**2**
50	Hydrogen tube	**tube length: 26 mm** **capillary length: 10cm** **For laboratory use**	**5**
51	absorption spectrum of kmno4 setup	Export Quality Spectrometer, White light source, Absorption stand, Glass with heater **Laboratory use**	**1**
52	digital lux meter (Digital Light Meter)	1) Display: 3 1/2 digit LCD display 2) Measuring range: 200, 2000, 20000 and 200000 Lux 3) Over range display: Highest digit of "1"	**1**

		is displayed 4) Repeatability:±2% 5) Temperature characteristic: 0.1%℃ 6) Photosensitive component Si-light Cell attached with light filter 7) Measuring rate: Approximately 2.0 time / sec 8) Power supply: 1 x 9V battery (NEDA 1604 or jls 006P or IEC6F22) 9) Working temperature: 0~40℃,(32°F to 104°F) 0~80%Rh 10) Storage temperature: -10~60℃, (14°F to 140°F) 0~80%Rh 11) Size: 16cm x 7.5cm x 4cm	
53	Barium Titanate (BaTio3) Sample	Diameter: 10 MM Thickness: 2 MM Use: for use in to find curie temperature	**2**
54	silica crucible	**Use: Laboratory** **Material: Silica** **Colour: White** **Temp. range: 0 to 1000 degree Celsius**	**5**
55	Glass Beaker (100 ml)	**Use: Laboratory** **Capacity: 100 ml** **Material: Borosilicate glass** **Shape: Round**	**10**
56	Glass Beaker (500 ml)	**Use: Laboratory** **Capacity: 500 ml** **Material: Borosilicate glass** **Shape: Round**	**5**
57	Cotten	**For cleaning purpose**	**2 roll**
58	Tissue paper	**For cleaning purpose**	**5 box**
59	PN junction diodes	**1N4001 to 1N4007**	**Each 25**
60	Zener Diodes	**Breakdown voltage range** **2V, 3V, 5V, 6V, 10V**	**Each 25**
61	Led of different colures (Red,green,blue,yellow)	**Red: 25** **Green: 25** **Blue: 25** **Yellow: 25**	**100**
62	Sodium lamp with power supply	Complete with sodium lamp 35watts with vaccum jacket. Transformer & wooden box	**5**

		having four holes with slide covers, one each on every side at different heights.	
63	mercury lamp with power supply	Complete with Mercury Vapour lamp 80W along with choke & wooden box with holes with slide covers one each on three sides.	**5**
64	spirit	for spirit lamp for fuel purpose	**2 L**