



OFFICE OF THE PRINCIPAL

RAMKRISHNA NAGAR COLLEGE

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Affiliated to Assam University, Silchar

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Memo. No. RUSA/EQIP/N.A.-GEM/25/1

Date: 06.01.2025

NOTICE INVITING QUOTATION

Sealed quotations are hereby invited from the prospective and reputed Firms/ Suppliers/ Dealers for the supply of Physics Equipment's for Physics Laboratory at Ram Krishna Nagar College, Karimganj.

Quotation on letter head will be received by the undersigned up to 2:00 P.M. on 08-01-2025 and the same will be opened at 2:30 P.M. on the same day in the Principal's Chamber in presence of the intending bidder. Details of the NIQ is attached along.

Terms & Conditions:

- a) The quoted rates should be inclusive of all taxes & charges.
- b) GST will be deducted from the bill as per the norms.
- c) All available discounts & offers are to be mentioned.
- d) The bidder may also include other terms & conditions subject to acceptance by the College Authority.
- e) The College Authority reserve the right to accept or reject any or all quotations without showing any reasons thereof & also not liable to accept the lowest quotation in the interest of the College.
- f) Decision of the college Authority is final and binding.
- g) Payment will be regulated subject to the RUSA fund.

Copy to:

- College Notice Board.
- Respective Office file.
- College Website.

TECHNICAL SPECIFICATION

Sr. No	Name & Specification
1	<p>Newton Ring Experiment kit</p> <p>Experiments: To determine the wavelength of sodium light. To determine the refractive index of a liquid by using Newton's rings apparatus. To find the radius of curvature of planoconvex lens using spherometer. To find the thickness of a thin sheet of paper (air wedge experiment).</p> <p>Technical details :- Linear motion : 10 – 0 -10mm Micrometer : Vernier dial 100 div., LC 0.01mm Eyepiece : Ramsden 10X Objective : 3X Spherometer disk(brass) : Types 3 legs, Vertical scale 6 x 6mm(WxT) Micrometer dia. 40mm, Brass lower disc dia. 60mm, Range 10-0-10mm, Least count 0.01mm Plano convex lens : Dia. 61.5mm, Glass, Focal length 200mm Sodium source : MS housing, 200 x 85mm (LxØ), slit(LxW) 20x16mm Sodium bulb : 35W Fuse : 2A Body : Al casting Weight : 12.6 kg approx</p> <p>Key topic covered :- Phase relationship Coherent light Path difference Interference. Newton's rings. Refractive index. Thickness of sheet wavelength. Radius of curvature.</p> <p>Silent features :- Stand alone setup (built in sodium bulb, microscope,HID blast transformer & optics in a single compact body. Reflector mounted at 45°(no special adjustment required). High quality glass plates (flatness $\lambda/10$). Heavy rigid body weight 12.6 Kg approx. Smooth X & Y movement of reflector assembly. Modern compact design required less space in Laboratory. Modern user friendly design.</p>
2	<p>CURRENT AND VOLTAGE SOURCES</p> <p>Experiments: Exp-1 V-I characteristics of a solar cell. Exp-2 I-R characteristics of a solar cell as a function of the irradiance.</p> <p>Technical details :- Table Lamp Wattage 60W, Input 230V Solar Cell</p>

	<p>Plug-in Modules : 2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.</p> <p>Plug-in Board : Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.</p> <p>Digital Multimeter :- Resistance :200W, 2000W, 20k, 200k & 2000k W.</p> <p>D.C.Voltage : 200 & 2000 mV 20V, 200V & 600 V</p> <p>A.C.Voltage : 200 & 600 V</p> <p>D.C.Current : 200 & 2000 micro A, 20mA & 200 mA, 10A</p> <p>Testing : Diode & transistor</p> <p>Battery : 9V</p> <p>Key features :</p> <p>Students use plug-in modules for circuit design.</p> <p>Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.</p> <p>The symbol's name and the value of the components are printed on top of the transparent housing.</p> <p>Convenient & Easy to make circuit diagram using plug-in modules.</p> <p>Do it yourself approach provideds better learning.</p> <p>Economical & Flexible method of performing all experiments on one circuit board</p>
3	<p>Transistors Characterstics</p> <p>Experiments:</p> <p>Diode characteristics of transistor junctions.</p> <p>To study the characteristics of a transistor.</p> <p>To study the characteristics of a field-effect transistor.</p> <p>Technical details :-</p> <p>Regulated Power Supply</p> <p>Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed Ripple Less than 25mV</p> <p>Display 3 1/2 Digit LED for 0-16V DC</p> <p>Input voltage 230V AC, 50 Hz</p> <p>Digital Multimeter</p> <p>Resistance :200W, 2000W, 20k, 200k & 2000k W.</p> <p>D.C.Voltage : 200 & 2000 mV 20V, 200V & 600 V</p> <p>A.C.Voltage : 200 & 600 V</p> <p>D.C.Current : 200 & 2000 micro A, 20mA & 200 mA, 10A</p> <p>Testing : Diode & transistor</p> <p>Battery : 9V</p> <p>Plug-in Modules</p> <p>2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.</p> <p>Plug-in Board</p> <p>Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.</p> <p>Silent features :-</p> <p>Students use plug-in modules for circuit design.</p> <p>Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.</p> <p>The symbol's name and the value of the components are printed on top of the transparent housing.</p> <p>Convenient & Easy to make circuit diagram using plug-in modules.</p> <p>Do it yourself approach provideds better learning.</p> <p>Economical & Flexible method of performing all experiments on one circuit board.</p>
4	<p>Diode Circuit And Power Supply</p> <p>To study half wave and full wave rectifier.</p> <p>To study full wave (bridge) rectifier.</p>

To study capacitor filter effect in power supply.
To study unregulated and regulated power supply.

Silent Features

1) Students use plug-in modules for circuit design.
Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.
The symbol's name and the value of the components are printed on top of the transparent housing.
Convenient & Easy to make circuit diagram using plug-in modules.
Do it yourself approach provideds better learning.
Economical & Flexible method of performing all experiments on one circuit board.

Technical details :-

Transformer
Center tapped 9-0-9V AC
Copper Winding
Digital Multimeter
Resistance :200W, 2000W, 20k, 200k & 2000k W.
D.C.Voltage : 200 & 2000 mV 20V, 200V & 600 V
A.C.Voltage : 200 & 600 V
D.C.Current : 200 & 2000 micro A, 20mA & 200 mA, 10A
Testing : Diode & transistor
Battery : 9V
Plug-in Modules
2/ 4 pin modules, 4mm plug-in pins, transperent cover, Symbol/Circuit printed on cover.
Plug-in Board
Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

Transistors As Oscillator

Experiments :-

To study Astable multivibrator using transistor.
To study Colpitt's oscillator.
To study Hartley oscillator.
To study UJTas relaxation oscillator

Key features :_

Students use plug-in modules for circuit design.
Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.
The symbol's name and the value of the components are printed on top of the transparent housing.
Convenient & Easy to make circuit diagram using plug-in modules.
Do it yourself approach provideds better learning.
Economical & Flexible method of performing all experiments on one circuit board.

5)

Technical details :-

Regulated Power Supply
Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed
Ripple Less than 25mV
Display 3 1/2 Digit LED for 0-16V DC
Input voltage 230V AC, 50 Hz
Plug-in Modules
2/ 4 pin modules, 4mm plug-in pins, transperent cover, Symbol/Circuit printed on cover.
Plug-in Board
Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

	<p>1 Circuit Board 1 2 Capacitor Module 0.047μF 1 Capacitor Module 0.001μF 2 Capacitor Module 0.01μF 2 Capacitor Module 0.1μF 1 Choke Module 2 Inductor Module 30mH 1 Inductor Module 60mH 1 Resistor Module 100Ω 2 Resistor Module 1kΩ 2 Resistor Module 10kΩ 1 Resistor Module 75kΩ 1 Resistor Module 100kΩ 1 Resistor Module 330kΩ 1 Resistor Module 470kΩ 2 Transistor Module 2N2222 1 UJT Module 6 Flexible Lead Set (25cm) 2 Flexible Lead Set (50cm) 2 Flexible lead Set (100cm) 1 Variable Power Supply.</p>
6.	<p>Combinatorial & Sequential Circuits :- Experiment :- To study half adder and full adder circuit. To study half Subtractor. To study BCD to 7-segment decoder. To study decade counter. To study RS flip flop. To study D flip flop. To study JK flip flop. To study shift registers.</p> <p>Features :- Students use plug-in modules for circuit design. Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components. The symbol's name and the value of the components are printed on top of the transparent housing. Convenient & Easy to make circuit diagram using plug-in modules. Do it yourself approach provideds better learning. Economical & Flexible method of performing all experiments on one circuit board.</p> <p>Regulated Power Supply Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed Ripple Less than 25mV Display 3 1/2 Digit LED for 0-16V DC Input voltage 230V AC, 50 Hz Plug-in Modules 2/ 4 pin modules, 4mm plug-in pins, transperent cover, Symbol/Circuit printed on cover.</p>

Plug-in Board

Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

- 1 Circuit Board
- 2 AND Gate Module
- 2 Ex-OR Gate Module
- 10 Flexible Lead Set (25cm)
- 6 Flexible Lead Set (50cm)
- 5 Flexible lead Set (100cm)
- 1* Full Adder Module
- 1* Half Adder Module
- 1* Half Subtractor Module
- 1 OR Gate Module
- 1 FND+7 Segment Decoder
- 1 Decade Counter Module
- 1 RS Flip Flop
- 1 D-Flip Flop
- 1 JK Flip Flop Module
- 1 Shift Register Module
- 3 Switch Module
- 1 Push Button Module
- 1 Digital Multimeter
- 1 Signal Generator
- 1 Variable Power Supply

7) Diodes Characteristics :

Experiment :- To study the V-I characteristics of diodes.

To study the V-I characteristics of zener diodes.

To study the V-I characteristics of light-emitting diodes.

Features :-

Students use plug-in modules for circuit design.

Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.

The symbol's name and the value of the components are printed on top of the transparent housing.

Convenient & Easy to make circuit diagram using plug-in modules.

Do it yourself approach provides better learning.

Economical & Flexible method of performing all experiments on one circuit board.

Regulated Power Supply

Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed
Ripple Less than 25mV

Display 3 1/2 Digit LED for 0-16V DC

Input voltage 230V AC, 50 Hz

Plug-in Modules

2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.

Plug-in Board

Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

- 1 Circuit Board
- 2 Digital Multimeter
- 1 Diode Module

4 Flexible Lead Set (50cm)
2 Flexible lead Set (100cm)
1 Resistor Module 1k Ω
1 LED Module (red)
1 Resistor Module 330 Ω
1 Zener Diode Module
1 Variable Power Supply

8) Basic Logical Operations :-

Experiment :-

AND, OR, XOR, NOT, NAND and NOR operations using single logic gate modules.

De Morgan's laws

AND, OR, XOR, NOT, NAND and NOR operations using quad logic gate modules.

Students use plug-in modules for circuit design.

Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.

The symbol's name and the value of the components are printed on top of the transparent housing.

Convenient & Easy to make circuit diagram using plug-in modules.

Do it yourself approach provides better learning.

Economical & Flexible method of performing all experiments on one circuit board.

Regulated Power Supply

Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed

Ripple Less than 25mV

Display 3 1/2 Digit LED for 0-16V DC

Input voltage 230V AC, 50 Hz

Plug-in Modules

2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.

Plug-in Board

Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

1 AND Gate Module

1 Circuit Board

1 Ex-OR Gate Module

6 Flexible Lead Set (25cm)

8 Flexible Lead Set (50cm)

2 Flexible lead set (100cm)

1 NAND Gate Module

1 NOR Gate Module

1 NOT Gate Module

1 OR Gate Module

2 Switch Module

1 Variable Power Supply

1* AND Gate Module

1* Ex-OR Gate Module

1* NAND Gate Module

1* NOR Gate Module

1* NOT Gate Module

1* OR Gate Module

9) Opamp As Oscillator :-

To Study RC Phase Shift Oscillator Using Op-Amp.

To Study Wein Bridge Oscillator Using Op-Amp.

Students use plug-in modules for circuit design.

Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.

The symbol's name and the value of the components are printed on top of the transparent housing.

Convenient & Easy to make circuit diagram using plug-in modules.

Do it yourself approach provides better learning.

Economical & Flexible method of performing all experiments on one circuit board.

Power Supply

Power Supply : Output voltage $\pm 15V$ Fixed, Current 500mA

Overload protection Current limiting.

Input Voltage 230V AC, 50Hz

Plug-in Modules

2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.

Plug-in Board

Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

1 Circuit Board

1 Power Supply +/- 15V

6 Flexible Lead Set (25cm)

4 Flexible Lead Set (50cm)

3 Flexible lead Set (100cm)

1 OP-AMP Module

3 Resistor Module 3.3k Ω

3 Resistor Module 10k Ω

2 Resistor Module 15k Ω

2 Resistor Module 27k Ω

1 Resistor Module 100k Ω

1 Variable Resistor 1M Ω

3 Capacitor Module 0.01 μF

2 Capacitor Module 0.022 μF

3 Capacitor Module 0.1 μF

10) Special Diode Characteristics:-

Experiment :-

To study MOSFET characteristics.

To study characteristics of SCR.

To study characteristics of TRIAC.

Students use plug-in modules for circuit design.

Component mounted on PCB and these PCB fix in a transparent housing for the visibility of the components.

The symbol's name and the value of the components are printed on top of the transparent housing.

Convenient & Easy to make circuit diagram using plug-in modules.
Do it yourself approach provides better learning.
Economical & Flexible method of performing all experiments on one circuit board.
Regulated Power Supply

Regulated Power Supply : Output Voltage 0 -16V, 1 Amp, 5V. 1 Amp. DC Fixed
Ripple Less than 25mV
Display 3 1/2 Digit LED for 0-16V DC
Input voltage 230V AC, 50 Hz
Digital Multimeter

Resistance :200W, 2000W, 20k, 200k & 2000k W.
D.C.Voltage : 200 & 2000 mV 20V, 200V & 600 V
A.C.Voltage : 200 & 600 V
D.C.Current : 200 & 2000 micro A, 20mA & 200 mA, 10A
Testing : Diode & transistor
Battery : 9V

Plug-in Modules

2/ 4 pin modules, 4mm plug-in pins, transparent cover, Symbol/Circuit printed on cover.

Plug-in Board

Plug-in board has 4mm sockets, arranged in 2 x 2 matrix. Total matrix 24nos.

1 Circuit Board
3 Digital Multimeter
6 Flexible Lead Set (50cm)
4 Flexible lead Set (100cm)
1 MOSFET Module
1 SCR Module
1 Traic Module
1 Resistor Module 1k Ω , 1W
1 Resistor Module 100 Ω ,1W
2 Resistor Module 50 Ω , 1W
2 Variable Power Supply
