Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: OCT / NOV 2024
Faculty: Science and Technology

Program: B.Sc. Code (Gen 03) **Semester: V** **SET: A**
Program (Specific): General B.Sc. **Course Type: Core**
Class: T.Y.B.Sc. (Gen) **Max. Marks: 35**
Name of the Course: Basics of Electrical Wiring
Course Code: 24-PHY-3511 **Time: 2Hr**
Paper: XI

Instructions to the candidate:

1) *There are 4 sections in the question paper. Write each section on separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a neat labelled diagram wherever necessary.*

SECTION: A

Q1) Define or Explain the following. **(5 Marks)**

i) State Fleming's left-hand rule.

ii) What is the self-inductance of a coil?

iii) State Norton's theorem.

iv) State Kirchhoff's current law.

v) Write the names of any four components used in electric wiring.

Q2) Answer the following questions. **(Attempt any four)** **(4 Marks)**

i) State importance of earthing related to electrical wiring systems.

ii) What are open and closed circuits?

iii) State Lenz's law.

iv) State the use of a fuse wire.

v) Write names of any two types of insulating material.

vi) What is the magnitude of impedance and the phase angle in a series RLC circuit?

SECTION: B

Q3) Answer the following. (Attempt any four) (8 Marks)

i) What is the importance of wiring diagrams and symbols?

ii) A practical resonant circuit has an inductor of 0.24 H and a capacitor of 3 μF, the capacitor can be assumed to be lossless. The resistance of the inductor is 150 Ω, find the resonant frequency and quality factor.

iii) Explain the use of MCB in electric wiring system.

iv) Differentiate between a constant current and constant voltage source.

v) Explain working of a half wave rectifier.

vi) With the help of a neat diagram show how live, neutral and earth wires are connected in a three pin socket. What is the function of these wires?

SECTION: C

Q4) Answer the following. (Attempt any two) (8 Marks)

i) With the help of a neat, labelled diagram, explain working of a voltage divider circuit.

ii) Define time constant? Explain time constant in case of series R-C circuit.

iii) Explain the use of following tools used in carrying out electrical wiring installations.
1. Screw diver 2. Tester 3. Nose plier 4. Cutter

iv) With the help of a neat diagram explain mutual inductance of a coil.

SECTION: D

Q5) Attempt any two of the following. (10 Marks)

i) State Thevenin theorem. How to thevenize a circuit.

ii) With the help of a neat diagram, explain the use of Zener diode as a voltage regulator.

iii) Write a note on types of cables.

iv) Explain Wye and Delta inter connection of three phase systems.