ODD- 2024-25

GOVERNMENT POLYTECHNIC MUMBAI

TERM END EXAMINATION

SC25

Programme : CO/IF (Sandwich Pattern)
Course Title : Applied Physics

2:30 Hours / 60 marks

Enrolment No. | 9 | 9 | 2 | 4 | I | F | 0 | 0 | 3 |

Instructions:
1. Attempt all the questions.
2. Illustrate your answers with neat sketches wherever necessary.
3. Use of Mathematical Tables, Steam Table and Pocket Calculator (non-programmable) is permissible.
4. Marks on Right Hand Side indicate full marks for the question.
5. Assume suitable additional data, if necessary
6. CO=COURSE OUTCOMES, L=LEVELS

Q.1 Attempt any SIX **12 Marks**

a. Write two requirements of a good unit. [CO-1, L-U]
b. Define oscillatory motion and state two examples of it, [CO-2, L-R]
c. Derive the relation between linear velocity and angular velocity. [CO-2, L-U]
d. Define : (i) Electric flux (ii) Electric flux density. [CO-3, L-R]
e. State Ohm's law. Write its mathematical expression. [CO-4, L-R]
f. State two properties of magnetic lines of force. [CO-4, L-U]
g. Calculate intensity of electric field at a point 0.4m from a charge of 1.6μc, when placed in air. [CO-3, L-A]
h. Draw labelled diagram of optical fiber. [CO-5, L-U]
i. State Laplace's law. [CO-4, L-R]

Q.2 Attempt any THREE **12 Marks**

a. Define error. Explain different types of errors. [CO-1, L-U]
b. Distinguish between centripetal force and centrifugal force. [CO-2, L-U]
c. Compare optical fiber cable with electrical cable. [CO-5, L-U]
d. Two resistances have effective resistance of 16Ω in series and 4Ω in parallel. Find each resistance. [CO-4, L-A]

Q. 3 Attempt any THREE **12 Marks**

a. State properties of electric lines of force. [CO-3, L-U]
b. Mention four applications of Newton's first law of motion. [CO-2, L-A]
c. Write four applications of optical fiber. [CO-5, L-A]
d. Calculate magnetic induction at the centre of a circular coil of radius 5.80 cm carrying a current of 100A. [CO-4, L-A]

Q. 4 Attempt any FOUR **12 Marks**

a. Define : (i) Frequency (ii) Amplitude (iii) Wavelength. [CO-2, L-R]
b. Obtain balancing condition for Wheatstone's network. [CO-4, L-U]
c. State laws of refraction. [CO-5, L-R]
d. Write three applications of centrifugal force. [CO-2, L-A]
e. Write dimensional formula for following physical quantities: [CO-1, L-A]
(i) Area (ii) Velocity (iii) Force.

Q. 5 **Attempt any TWO** 12 Marks

a. (i) Define system of units. State two system of units. [CO-1, L-R]
(ii) A ball is thrown in space & caught at same height after 4 second. Calculate its final velocity at base & maximum height attained by it. [CO-2, L-A]

b. (i) Define specific resistance. State its SI unit. [CO-4, L-R]
(ii) For an equilateral prism, the angle of incidence is 40^0. Find angle of minimum deviation. [CO-5, L-A]

c. (i) State Coulomb's law of electrostatics. [CO-3, L-R]
(ii) Two point charges of 4μc and 16μc are placed 30cm apart in air. At what point between them the electric intensity due to charges will be equal? [CO-3, L-A]

****End****