

MODEL QUESTION PAPER FOR FORMATIVE ASSESSMENT - 1

Time: 1 hour

SUBJECT - PHYSICS (33)

Max Marks : 25

General instructions:

- 1) All parts are compulsory.
- 2) Draw relevant diagram / figure wherever necessary.
- 3) Numerical problems should be solved with relevant formulae.

Part-A

I Answer any TWO of the following

2X1=2

1. Who introduced the concept of anti particle theoretically?
2. Define average speed.
3. Write the expression for the range of the projectile.

Part-B

II Answer any TWO of the following

2X2=4

4. Mention any two fundamental forces in nature.
5. What are the dimensions of a physical quantity? Write the dimensions of momentum.
6. Obtain the relation $v = r\omega$ with usual notations.

Part-C

III Answer any ONE of the following

1X4=4

7. Derive the relation connecting the period, length, mass of the pendulum and acceleration due to gravity, using the method of dimensions.
8. Derive an expression for centripetal acceleration.

OR

Find the magnitude and direction of the resultant of two vectors A and B in terms of their magnitudes.

Part-D

IV Answer the following

2X5=10

9. Deduce $x = v_0t + \frac{1}{2}at^2$ using v-t graph.

OR

Obtain the equations of motion for constant acceleration using method of calculus.

10. Show that the path traced by a projectile is a parabola.

Part-E

V Answer any one of the following

1X5=5

11. The position of an object moving along x-axis is given by $x(t) = a + bt^2$ where $a = 8.5\text{m}$, $b = 2.5\text{ms}^{-2}$ and t is measured in seconds. What is its velocity at $t = 0\text{ s}$ and $t = 2.0\text{ s}$? What is the average velocity between $t = 2.0\text{ s}$ and $t = 4.0\text{ s}$?
12. An insect trapped in a circular groove of radius 12 cm moves along the groove steadily and completes 7 revolutions in 100 s. (a) What is the angular speed and linear speed of the motion? (b) Is the acceleration vector a constant vector? What is its magnitude?
