COMMON FIRST MID TERM TEST - 2023

Standard - XI   Reg.No.

Time: 1.30 hrs.   **PHYSICS**   *Thoothukudi District*   Marks:35

PART - I

Answer All the Questions.   10×1=10

1. Which of the following pairs of physical quantities have same dimension?
   a) force and power   b) torque and energy   c) torque and power   d) force and torque

2. Which of the following has the highest number of significant figures?
   a) 0.007 m^2 b) 2.64X 10^{24} Kg   c) 0.060320m^2 d) 6.320j

3. The velocity of a particle v at an instant is given by v = at + bt^2
   a) [L]   b) [LT^1]   c) [LT^2]   d) [LT^3] $[LT^{-3}]$

4. If a particle has negative velocity and negative acceleration ,its speed
   a) increases   b) decreases   c) remains same   d) Zero

5. Which one of the following physical quantities cannot be represented by a scalar?
   a) Mass   b) length   c) momentum   d) magnitude of acceleration

6. If a particle executes uniform circular motion, choose the correct statement
   a) The velocity and speed are constant
   b) The acceleration and speed are constant.
   c) The velocity and acceleration are constant
   d) The speed and magnitude of acceleration are constant.

7. An object is dropped in an unknown planet from height 50m.it reaches the ground in 2 s. The acceleration due to gravity in this unknown planet is
   a) g = 20 ms^{-2} b) g = 25 ms^{-2} c) g = 15 ms^{-2} d) g = 30 ms^{-2}

8. If $\vec{A} = 2\vec{i} + 3\vec{j}$ What is value of 3$\vec{A}$ $3(2\vec{i}+3\vec{j}) = 6\vec{i}+9\hat{j}$
   a) 8i + 27 j   b) 9i + 6 j   c) 27i + 8 j   d) 6i + 9 j

9. If the error in the measurement of radius is 2% then the error in the determination of volume of the sphere will be
   a) 8%   b) 2%   c) 4%   d) 6%

10. If $\vec{A} × \vec{B} = \vec{A}.\vec{B}$, What is the angle between $\vec{A}$ and $\vec{B}$
    a) $\pi/2$ b) $\pi/4$ c) π d) zero

PART - II

Answer three questions. (Question no.14 compulsory)   3×2=6

11. Define acceleration.

12. Define precision and accuracy. Explain with one example.

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13. Write down the kinematic equations for angular motion.

14. Check the dimensional correctness of the given physical equation $v = u + at$

15. What is meant by fractional error.

PART - III

Answer three questions.(Question no.17 compulsory):   3×3=9

16. What are the Applications of dimensional analysis?

17. Consider two masses of 10g and 1kg with the same spped 10 ms^{-1}. Calculate the magnitude of the momentum.

18. Write a note on radar method to measure larger distances.

19. Write short notes on the following. (1) Time of fight 2) Horizontal range.

20. Write the rules for determining significant figures.

PART - IV

Answer all the questions.   2×5=10

21. a) Discuss the properties of scalar products.

(OR)

b) Derive the kinematic equations of motion for constant acceleration.

22. a) Explain in detail the various types of errors.

(OR)

b) Obtain an expression for the time period T of a simple pendulum. The time period T depends in (i) mass 'm' of the bob (ii) length 'ℓ' of the pendulum and (iii) acceleration due to gravity g at the place where the pendulum is suspended.(constant K = 2π)

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