Ts-11P

Tenkasi District Common Examinations

Common First Mid Term Test - 2022

Standard 11

PHYSICS

Time: 1.30 Hrs. Marks: 35

Part - A

Answer ALL the questions: **10×1=10**

1) If the error in 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%

2) The Velocity of a particle V at any instant is given by $V = at+bt^2$

a) L b) LT^{-1} c) LT^{-2} d) LT^{-3}

3) The dimension $(\mu_0\varepsilon_0)^{-1/2}$ is

a) length b) time

c) velocity d) force

4) Which of the following pair have same dimentions?

a) Force and Pressure b) Stress and Strain

c) Momentum and Impulse d) Work and Pressure

5) Identify the unit vector in the following

a) $\hat{i}+\hat{j}$ b) $\frac{\hat{i}}{\sqrt{2}}$ c) $\hat{k}-\frac{\hat{j}}{\sqrt{2}}$ d) $\frac{\vec{i}+\vec{j}}{\sqrt{2}}$

6) If the velocity is $\vec{v} = 2\hat{i}+t^2\hat{j}-9\hat{k}$, then the magniture of acceleration at t = 0.5 second is

a) 1 ms^{-2} b) 2 ms^{-2} c) zero d) −1 ms^{-2}

7) Which of the following is example for scalar product?

a) Torque b) Workdone

c) Liner Velocity d) Angular momentum

8) If an object is thrown vertically up with initial speed u from the ground, then the time taken by the object to return back to ground is

a) $\frac{u^2}{2g}$ b) $\frac{u^2}{g}$ c) $\frac{u}{2g}$ d) $\frac{2u}{g}$

9) Two massess m_1 and m_2 are experiencing the same force when $m_1<m_2$. The ratio of their acceleration a_1/a_2 is

a) 1 b) less than 1

c) greater than 1 d) all the above

10) If a person moving from pole to equator, the centrifugal force acting on him.

a) increase b) decreases

c) remains the same d) increases and then decreases

Part - B

Answer any 3 questions. Question No. 14 is compulsory: 3×2=6

11) What is the principle of homogeneity of dimensions?

12) What is relative velocity?

13) State Newton's Second Law.

14) Distinguish fundamental quantity and derived quantity.

15) What is vector product? Give example.

Part - C

Answer any 3 questions. Question No. 19 is compulsory: 3×3=9

16) How will you measure height of the tree using triangulation method?

17) Explain cross error and how will you minimize it?

18) Deduce the relation between linear velocity and angular velocity.

19) Two vectors are given as $\vec{r} = 2\hat{i} + 3\hat{j} + 5\hat{k}$ and $\vec{F} = 3\hat{i} - 2\hat{j} + 4\hat{k}$. Find the resultornt $\vec{\tau} = \vec{r} \times \vec{F}$.

20) Define angle of friction. Deduce the relation between coefficient of static friction and angle of friction.

Part - D

Answer all questions: 2×5=10

21) a) Convert 76 cm of mercury pressure into Nm^{-2} using the method of dimension.

(OR)

b) Deduce the expression for magnitude and direction of resultant vector of addition using triangular law.

22) a) Drive the kinematics equations of motion for constant acceleration.

(OR)

b) Compare static friction and kinetic friction.
