

Tsi11P

Tenkasi District



Common First Mid Term Test - 2024

30-07-2024

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 3%, then the error in the determination of volume of the sphere will be
 - a) 6%
 - b) 3%
 - c) 9%
 - d) 27%
- 2) If the force is proportional to square of Velocity, then the dimensions of proportionality constant is
 - a) $[ML^{-1}T^0]$
 - b) $[MLT^{-1}]$
 - c) $[ML^{-2}T]$
 - d) $[MLT^0]$
- 3) The density of a material in CGS system of units is $4g\text{ cm}^{-3}$. In a system of units in which unit of length is 10 cm and unit of mass is 100 g, then the value of density of material will be
 - a) 400
 - b) 40
 - c) 0.04
 - d) 0.4
- 4) $3.1 + 1.780 + 2.046 = ?$
 - a) 6.926
 - b) 6.93
 - c) 6.9
 - d) 6.900
- 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) $\frac{\hat{i} + \hat{j}}{\sqrt{2}}$
- 6) If a particle has negative velocity and negative acceleration, its speed
 - a) increases
 - b) decreases
 - c) remains same
 - d) zero
- 7) Two objects are projected at angles 50° and 40° respectively with respect to the horizontal direction. The range of two objects are denoted as R_{50° and R_{40° . Choose the correct relation from the following.
 - a) $R_{50^\circ} = 4 R_{40^\circ}$
 - b) $R_{50^\circ} = \frac{R_{40^\circ}}{2}$
 - c) $R_{50^\circ} = R_{40^\circ}$
 - d) $R_{50^\circ} = 2R_{40^\circ}$
- 8) If a person moving from pole to equator, the centrifugal force acting on him.
 - a) increase
 - b) decreases
 - c) remains the same
 - d) zero
- 9) Force acting on the particle moving with constant speed is
 - a) always non-zero
 - b) always zero
 - c) need not be zero
 - d) cannot be concluded
- 10) Two masses m_1 and m_2 are experiencing the same force where $m_1 < m_2$. The ratio of their acceleration $\frac{a_1}{a_2}$ is
 - a) 1
 - b) less than 1
 - c) greater than 1
 - d) all the three cases

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Part - B**Answer any 3 questions. Question No. 14 is compulsory:****3×2=6**

- 11) Define unit.
- 12) What is projectile? Give examples.
- 13) Define Radian.
- 14) If a stone of mass 0.25 kg tied to a string executes uniform circular motion with a speed of 2 ms⁻¹ of radius 3m, what is the magnitude of tensional force acting on the stone?
- 15) State the law of conservation of linear momentum.

Part - C**Answer any 3 questions. Question No. 18 is compulsory:****3×3=9**

- 16) Write a note on Gross errors.
- 17) Define displacement and distance.
- 18) A train was moving at the rate of 54 Km^h⁻¹ when brakes were applied. It came to rest within a distance of 225m. Calculate the retardation produced in the train.
- 19) State Newton's laws.
- 20) Consider an object of mass 2kg resting on the floor. The coefficient of static friction between the object and the floor is $\mu_s = 0.8$. Calculate the maximum frictional force when the body starts to move.

Part - D**Answer all questions:**

- 21) a) Write the rules for determining significant figures.
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- 2×5=10**
- (OR)**
- b) i) How will you measure the distance of moon from earth using parallax method?
 - ii) Define light year.
- 22) a) i) Define vector product.
 - ii) Discuss the properties of vector product.
- (OR)**
- b) What is Inertia? Explain its types with example.
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