

Tsl11P

Tenkasi District

Common Half Yearly Examination - December 2024



20-12-24

Standard 11

PHYSICS

PART - I

Time Allowed: 3.00 Hours

Maximum Marks: 70

Answer all the questions:

15×1=15

- 1) A couple produces
  - a) pure rotation
  - b) pure translation
  - c) rotation and translation
  - d) no motion
- 2) The gravitational potential energy of the moon with respect to earth is
  - a) always positive
  - b) always negative
  - c) can be positive or negative
  - d) always zero
- 3) For a given material, the rigidity modulus is  $(1/3)^{\text{rd}}$  of Young's modulus. Its Poisson's ratio is
  - a) 0
  - b) 0.25
  - c) 0.3
  - d) 0.5
- 4) In pure rolling of a disc, the velocity of its centre of mass is  $\vec{V}_{cm}$ . Then the resultant velocity at point of contact with the surface is
  - a)  $\vec{V}_{cm}$
  - b)  $2\vec{V}_{cm}$
  - c) zero
  - d)  $-2\vec{V}_{cm}$
- 5) The damping force on an oscillator is directly proportional to its velocity. The units of the constant of proportionality are
  - a)  $\text{Kgms}^{-1}$
  - b)  $\text{Kgms}^{-2}$
  - c)  $\text{Kgs}^{-1}$
  - d) Kgs
- 6) Suppose two cars A and B are moving with same uniform velocities along parallel tracks but in opposite directions. If the velocity of cars is  $40 \text{ Km h}^{-1}$ , then their relative velocity
  - a)  $40 \text{ Km h}^{-1}$
  - b) zero
  - c)  $80 \text{ Km h}^{-1}$
  - d)  $100 \text{ Km h}^{-1}$
- 7) If the length and time period of an oscillating pendulum have errors of 1% and 3% respectively then the error in measurement of acceleration due to gravity is
  - a) 4%
  - b) 5%
  - c) 6%
  - d) 7%
- 8) When an object is at rest on the inclined rough surface
  - a) Static and Kinetic frictions acting on the object is zero.
  - b) Static friction is zero but Kinetic friction is not zero.
  - c) Static friction is not zero and Kinetic friction is zero.
  - d) Static and Kinetic frictions are not zero.
- 9) Two objects of masses 8 kg and 20 kg are moving with same momentum. Then the ratio of their kinetic energies is
  - a)  $\frac{2}{5}$
  - b)  $\frac{5}{2}$
  - c)  $\frac{1}{1}$
  - d) None of the above
- 10) If one object is dropped vertically downward and another object is thrown horizontally from the same height, then the ratio of vertical distance covered to both objects after 10s is
  - a) 4
  - b) 2
  - c) 1
  - d) 0.5
- 11) A spring of force constant K is cut into two pieces such that one piece is double the length of the other. Then the long piece will have a force constant of
  - a)  $\frac{2}{3}K$
  - b)  $\frac{3}{2}K$
  - c) 3K
  - d) 6K
- 12) The time period of satellite of earth is 5 hours. When the distance between earth and satellite is increased by 4 times of initial value, then the new time period is
  - a) 10 hours
  - b) 20 hours
  - c) 40 hours
  - d) 80 hours
- 13) A metallic sphere of radius 1mm falling freely through a large column of glycerin. Then which of the following shows the variation in velocity of sphere, as it descends down,



