

Physics (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A, B, C & D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Which one of the following is correct?

- (A) $m = \frac{E}{C^2}$ (B) $m = \frac{C^2}{E}$ (C) $m = C^2 E$ (D) $m = CE$

2. Which of the following is perpendicular to $4\hat{i} - 3\hat{j}$:

- (A) $4\hat{i} + 3\hat{j}$ (B) $6\hat{i}$ (C) $7\hat{k} + \hat{i}$ (D) $3\hat{i} + 4\hat{j}$

3. Torque is rotational analogous of:

- (A) Momentum (B) Force (C) Weight (D) Axis of rotation

4. A ball is dropped from a height of 4.2 meters. To what height it will rise if there is no loss after rebounding?

- (A) 4.2 m (B) 8.4 m (C) 12.6 m (D) 2.4 m

5. Total time for which the projectile remains in air is called:

- (A) Time of projectile (B) Time period (C) Time of flight (D) Time constant

6. Dimensions of angular acceleration are:

- (A) $[T^{-1}]$ (B) $[T^{-2}]$ (C) $[T^{-3}]$ (D) $[LT^{-2}]$

7. When a body moves in a circular path it's linear velocity:

- (A) remains constant (B) becomes zero (C) changes (D) increases

8. If 20 waves pass through medium in one second with speed of 20 ms^{-1} , the wavelength is:

- (A) 20 m (B) 2 m (C) 400 m (D) 1 m

9. Distance between two consecutive nodes is:

- (A) λ (B) 2λ (C) $\frac{\lambda}{2}$ (D) $\frac{\lambda}{4}$

10. For mono atomic gas $C_v = \frac{3R}{2}$ therefore γ for this gas is:

- (A) $\frac{3}{5}$ (B) $\frac{5}{3}$ (C) $\frac{4}{15}$ (D) $\frac{15}{4}$

11. Average velocity of molecules in gas is:

- (A) zero (B) positive (C) negative (D) infinity

12. Gravity performs zero work when body moves:

- (A) Vertically (B) Horizontally (C) at 60° with vertical (D) at 60° with horizontal

13. The SI unit of rate of flow of fluid is:

- (A) m/s (B) m^3/s (C) m/s^2 (D) Kg m/s

14. Energy of particle executing SHM of amplitude X_0 is proportional to:

- (A) X_0^2 (B) X_0^{-2} (C) X_0 (D) $\frac{X_0^2}{2}$

15. Formula for Fringe spacing is:

- (A) $\frac{\lambda d}{L}$ (B) $\frac{\lambda L}{d}$ (C) $\frac{Ld}{\lambda}$ (D) $\frac{m\lambda L}{d}$

16. Length of astronomical telescope for normal adjustment is:

- (A) $f_o + f_e$ (B) $f_o - f_e$ (C) $\frac{1}{f_o} - \frac{1}{f_e}$ (D) $\frac{1}{f_o} + \frac{1}{f_e}$

17. Least count of meter rod is:

- (A) 0.01 cm (B) 0.001 cm (C) 0.1 cm (D) 1 cm