

CUCET Sample Paper: Physics

1. The minimum number of vectors, of unequal non-zero magnitudes, that can have a zero resultant is

- A) 2
- B) 3
- C) 4
- D) 5

2. The minimum distance between a node and an antinode in a standing wave is

- A) $\lambda/2$
- B) 2λ
- C) $\lambda/4$
- D) $\lambda/4$

3. A bomb of mass 12 kg at rest explodes into two pieces of masses 4 kg and 8 kg respectively. If the velocity of the second piece is 6 m/s, the kinetic energy of the first piece is

- A) 24J
- B) 32J
- C) 48J
- D) 288J

4. If the speed of a car is doubled, the distance needed to stop the car with the same braking force would be

- A) Doubled
- B) Quadrupled
- C) Unchanged
- D) halved

5. A body moves a distance of 10 m along a straight line under the action of a constant force of 5 N. If the work done is 25 J, the angle which the direction of force makes with the direction of motion of the body is

- A) 0°
- B) 30°
- C) 0°
- D) 60°

6. A constant torque acting on a uniform circular wheel changes its angular momentum

from L to $4L$ in 4 seconds. The magnitude of this torque is

- A) $3L/4$
- B) L
- C) $4L$
- D) $12L$

7. Two circular rings have their masses in the ratio 1:2 and diameters in the ratio 2:1. The ratio of their moments of inertia about axes passing through respective centres and perpendicular to their planes is

- A) 1:4
- B) $\sqrt{2}$:
- C) 1
- D) 2:1
4:1

8. A body of mass 8 kg is moving with a velocity of 5 m/s at a height of 10 m above the surface of earth. The total energy possessed by the body is

- A) 100J
- B) 684J
- C) 784J
- D) 884J

9. Efficiency of Carnot's cycle depends upon

- A) temperature of sink only
- B) the nature of the working substance
- C) temperature of source only
- D) temperatures of both source & sink

10) The law of equipartition of energy predicts that C_v for any monatomic gas should be equal to

R B) $1.5R$
A)

- C) $2R$
- D) $3R$