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) λ/2
B) Λ
C) 2 λ
D) λ/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) 24 J
B) 32 J
C) 48 J
D) 288 J

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) 60°
D) 90°

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 though respective centres and perpendicular to their planes is

A) 1:4
B) √2:1
C) 2:1
D) 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) 100 J
B) 684 J
C) 784 J
D) 884 J

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 Cv for any monatomic gas should be equal to

A) R
B) 1.5 R
C) 2 R
D) 3 R