

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Two S.H.M having displacements are $x_1 = a \sin \omega t$ and $x_2 = b \cos \omega t$. The path difference between them will be :			
	(A) Zero	(B) $\frac{\pi}{4}$	(C) $\frac{\pi}{2}$	(D) π
2	A particle of 1 Kg moving with initial velocity 5 ms^{-1} is acting upon by a constant force 10N. After 5 seconds its velocity becomes :			
	(A) 50 ms^{-1}	(B) 55 ms^{-1}	(C) 5 ms^{-1}	(D) 10 ms^{-1}
3	Dolphins detect small differences in the shape, size and thickness of objects through :			
	(A) Beats	(B) Radio waves	(C) Echolocation	(D) Both A and B
4	The ratio of dimensions of torque to angular momentum is :			
	(A) $I : T$	(B) $M : T$	(C) $T : I$	(D) $L : T$
5	Potential energy associated to the molecules of an ideal gas is considered to be :			
	(A) 100 J	(B) Low	(C) Zero	(D) High
6	A particle moves in a circle of radius r . In half the period of revolution, its displacement and distance covered are :			
	(A) $2r, \pi r$	(B) $2r, 2\pi r$	(C) $\sqrt{2}r, \pi r$	(D) $r, \pi r$
7	The magnitude of $-\hat{i} \cdot (\hat{k} \times \hat{j})$ is equal to			
	(A) 0	(B) $-2\hat{i}$	(C) \hat{i}	(D) $2\hat{i}$
8	The percentage uncertainty in mass and radius of earth is 2% and 5% respectively. The total percentage uncertainty in the volume of earth is :			
	(A) 7%	(B) 15%	(C) 9%	(D) 2%
9	The frequency of heart of normal human being is :			
	(A) 1.2 Hz	(B) 0.83 Hz	(C) 72 Hz	(D) 2 Hz
10	The magnifying power of a magnifying glass is 3. Its focal length will be :			
	(A) 15 cm	(B) 20 cm	(C) 8.3 cm	(D) 12.5 cm
11	A flywheel gains an angular speed of 540 rev / min in 9 second. Its angular acceleration is :			
	(A) $9\pi \text{ rad s}^{-2}$	(B) $6\pi \text{ rad s}^{-2}$	(C) $12\pi \text{ rad s}^{-2}$	(D) $2\pi \text{ rad s}^{-2}$
12	The horizontal range of a projectile is :			
	(A) Equal to height at 30°	(B) Double of height at 45°	(C) One fourth of the height at 90°	(D) Four times of height at 45°
13	The efficiency of diesel engine is :			
	(A) 25% to 35%	(B) 35% to 40 %	(C) 45% to 50%	(D) 20% to 25%
14	A mass is lifted to a height in 10 seconds. Now if the same mass is lifted to the same height in 20 seconds then work done in two cases are in the ratio :			
	(A) 1 : 2	(B) 2 : 1	(C) 1 : 1	(D) 4 : 1
15	Which of the vector can not be represented on graph :			
	(A) Unit vector	(B) Position vector	(C) Negative vector	(D) Null vector
16	Energy cannot flow away in the :			
	(A) Transverse waves	(B) Stationary waves	(C) Longitudinal waves	(D) Sound waves
17	The direction in which light energy is carried called a :			
	(A) Ray	(B) Wave front	(C) Locus	(D) Spherical wave