

SECTION 'A'

MULTIPLE CHOICE QUESTIONS (33 Marks)

Note: i) This section consist of 33 part questions and all are to be answered. Each question carries ONE mark.

Q.1 Select the most appropriate answer for each from the given options:

(1) The S.I unit of angular momentum is:

- ☆ $J-S$ ☆ $\frac{J}{S}$ ☆ $\frac{S}{J}$ ☆ $J-S^2$

(2) If the velocity of a body is doubled and the mass is reduced to one fourth, the kinetic energy will be:

- ☆ doubled ☆ unchanged
☆ halved ☆ four fold

(3) The range of audible sound is:

- ☆ 1 Hz to 10 Hz ☆ 20 Hz to 20,000 Hz
☆ 21,000 Hz to 24,000 Hz ☆ 25,000 Hz and onwards

(4) Bragg's law is:

- ☆ $2d\sin\theta = m\lambda$ ☆ $2m\lambda = d\sin\theta$
☆ $d\sin\theta = m\lambda$ ☆ $d\cos\theta = 2\lambda$

(5) If $\vec{A} \cdot \vec{B} = 0$, $\vec{A} \times \vec{B} = 0$ and $\vec{A} \neq \vec{0}$ vector, then $\vec{B}$ is:

- ☆ zero vector ☆ equal to $\vec{A}$
☆ perpendicular to $\vec{A}$ ☆ not parallel to $\vec{A}$

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(6) An object if falling through a viscous fluid with terminal velocity. Its velocity will be:

- ☆ zero ☆ decreased ☆ increased ☆ constant

(7) The angle between centripetal and tangential accelerations in circular motion is:

- ☆ 180° ☆ 90° ☆ 0° ☆ 45°

(8) One kilowatt hour is equal to:

- ☆ $3.6 \times 10^8 J$ ☆ $3.6 \times 10^6 J$
☆ $3.9 \times 10^6 J$ ☆ $3.6 \times 10^9 J$

(9) The weight of a man is 600N at the earth, his weight on the moon where $g_m = \frac{g}{6}$ will be:

- ☆ 3600N ☆ 300N ☆ 100N ☆ 600N

(10) The dot product of force and velocity is:

- ☆ work ☆ power ☆ momentum ☆ energy

(11) Huygen's Principle is used to determine:

- ☆ the speed of light ☆ position of wave front
☆ polarization ☆ refractive index

(12) If $\vec{F} = 3\hat{i}$ and $\vec{d} = 6\hat{j}$, then work done will be:

- ☆ 2J ☆ 9J ☆ 22J ☆ 0J

(13) A truck covers a distance of 360km in 5 hours, its speed will be:

- ☆ 180 km/h ☆ 360 km/h
☆ 72 km/h ☆ 36 km/h

(14) The point which describe the motion of the whole system or body is called:

- ☆ inertia ☆ centre of mass
☆ centre of gravity ☆ moments of inertia

(15) Wave front near the point source is:

- ☆ plane ☆ spherical ☆ conical ☆ cylindrical

(16) The first Muslim scientist who invented intravenous injection:

- ☆ Al-Beruni ☆ Ibn-ul-Haitham
☆ Yaqoob-al-Kindi ☆ Ibn-e-Sina

(17) The bending of light around sharp obstacles is called:

- ☆ Interference ☆ Polarization
☆ Refraction ☆ Diffraction

(18) $\hat{i} \cdot (\hat{k} \times \hat{j})$

- ☆ 1 ☆ -1 ☆ 0 ☆ $\hat{i}$

(19) For oscillatory motion of a simple pendulum, restoring force is:

- ☆ $mg\sin\theta$ ☆ $mg\cos\theta$ ☆ $mg\tan\theta$ ☆ mg

(20) Dimension of ratio between angular momentum and linear momentum is:

- ☆ L^{-1} ☆ ML ☆ L ☆ L^{-2}

(21) If ' M_o ' and ' M_e ' are magnifying powers of objective and eyepiece of a compound microscope respectively, then total magnification will be:

- ☆ $M_o \times M_e$ ☆ $M_o - M_e$ ☆ $M_o + M_e$ ☆ $\frac{M_o}{M_e}$

(22) A body pushes a toy car, on a horizontal floor with a force of 10N up to a displacement of 2m, then work done by the gravity on the car is:

- ☆ 20J ☆ 10J ☆ 5J ☆ 0J

(23) The acceleration of a projectile at the top of the trajectory will be:

- ☆ g ☆ $\frac{1}{2}g$ ☆ zero ☆ $2g$

(24) If a vector has three rectangular components each equal to 'a' the magnitude of vector will be:

- ☆ $\sqrt{3}a$ ☆ $3a$ ☆ a^3 ☆ $\sqrt{3}a$

(25) In a spectrometer, parallel beam of light is obtained by:

- ☆ Beam splitter ☆ Collimator
☆ Diffraction Grating ☆ Prism

(26) It is not a vector quantity:

- ☆ Force ☆ Torque ☆ Frequency ☆ Weight

(27) A ball is dropped from a height of 100m, its acceleration at half of its height will be:

- ☆ $9.8 m/s^2$ ☆ $4.9 m/s^2$ ☆ $10 m/s^2$ ☆ $5 m/s^2$

(28) If elevator moves upward with the acceleration 'a', the apparent weight of a body of mass 'm' in elevator will be:

- ☆ $mg - ma$ ☆ mg ☆ $mg + ma$ ☆ zero

(29) Pitch of sound depends upon:

- ☆ Amplitude ☆ Intensity
☆ Frequency ☆ Loudness

(30) 2nd condition of equilibrium is:

- ☆ $\Sigma F = 0$ ☆ $\Sigma P = 0$ ☆ $\Sigma r = 0$ ☆ $\Sigma a = 0$

(31) A force acting on a body is perpendicular to its displacement, the work done is equal to:

- ☆ Positive ☆ Negative ☆ Zero ☆ Infinite

(32) Distance between two consecutive nodes in a standing wave is:

- ☆ $\frac{\lambda}{4}$ ☆ λ ☆ $\frac{\lambda}{2}$ ☆ $\frac{\lambda}{3}$

(33) The number of significant figures in 2.0305 is:

- ☆ 4 ☆ 3 ☆ 5 ☆ 2