

**1. The dimensions of torque are same as that of**

- (A) Moment of force
- (B) Pressure
- (C) Acceleration
- (D) Impulse

**2. Two coils have a mutual inductance of 0.01 H. The current in the first coil changes according to equation  $I = 5 \sin 200\pi t$ . The maximum value of e.m.f induced in the second coil is**

- (A)  $10\pi$  Volt
- (B)  $0.1\pi$  Volt
- (C)  $\pi$  Volt
- (D)  $0.01\pi$  Volt

**3. A telescope has a large diameter of the objective. Then its resolving power is**

- (A) Independent of the diameter of the objective.
- (B) Low.
- (C) Zero.
- (D) High.

**4. The radius of the earth and the radius of orbit around the sun are 6371 km and  $149 \times 10^6$  km respectively. The order of magnitude of the diameter of the orbit is greater than that of earth by**

- (A)  $10^3$
- (B)  $10^2$
- (C)  $10^4$
- (D)  $10^5$

**5. A stone of mass 1kg is tied to a string 2m long and is rotated at a constant speed of  $40 \text{ ms}^{-1}$  in a vertical circle . The ratio of the tension at the top and the bottom is [Take  $g = 10\text{ms}^{-2}$ ]**

- (A) 81/79
- (B) 79/81
- (C) 19/12
- (D) 12/19

**6. In a series LCR circuit  $R=300\Omega$  , $L=0.9\text{H}$ , $C=2\mu\text{F}$  ,  $\omega =1000\text{rad/s}$ . The impedance of the circuit is**

- (A)  $500\Omega$
- (B)  $1300\Omega$
- (C)  $400\Omega$
- (D)  $900\Omega$

**7. Two identical wires of substances 'P' and 'Q' are subjected to equal stretching force along the length. If the elongation of 'Q' is more than that of 'P', then**

- (A) Both P and Q are equally elastic
- (B) P is more elastic than Q
- (C) P is plastic and Q is elastic
- (D) Q is more elastic than P

**8. In moving coil galvanometer, strong horse shoe magnet of concave shaped pole pieces is used to**

- (A) Increase space for rotation of the coil.
- (B) Reduce weight of galvanometer
- (C) Produce a magnetic field which is parallel to the plane of the coil at any position.

(D) Make magnetic induction weak at the centre

**9. The quantity which does not vary periodically for a particle performing S.H.M. is**

- (A) Acceleration
- (B) Total Energy
- (C) Displacement
- (D) Velocity

**10. If radius of the solid sphere is doubled by keeping its mass constant, the ratio of their moment of inertia about any of its diameter is**

- (A) 1:8
- (B) 2:5
- (C) 2:3
- (D) 1:4

**11. For a metallic wire, the ratio of voltage to corresponding current is**

- (A) Independent of temperature
- (B) Increases with rise in temperature
- (C) Increases or decreases with rise in temperature depending upon the metal
- (D) Decreases with rise in temperature

**12. In fundamental mode, the time required for the sound wave to reach upto the closed end of a pipe filled with air is 't' second .The frequency of vibration of air column is**

- (A)  $(2t)^{-1}$
- (B)  $4(t)^{-1}$
- (C)  $2(t)^{-1}$
- (D)  $(4t)^{-1}$

**13. Work done in stretching a wire through 1mm is 2J. What amount of work will be done for elongating another wire of same material, with half the length and double the radius of cross section, by 1 mm?**

- (A) 2J
- (B) 4J
- (C) 8J
- (D) 16J

**14. The angle made by orbital angular momentum of electron with the direction of the orbital magnetic moment is**

- (A)  $120^\circ$
- (B)  $60^\circ$
- (C)  $180^\circ$
- (D)  $90^\circ$

**15. A galvanometer has resistance of  $100\Omega$  and a current of 10mA produces full scale deflection in it. The resistance to be connected to it in series, to get a voltmeter of range 50 volt is**

- (A)  $3900\Omega$
- (B)  $4000\Omega$
- (C)  $4600\Omega$
- (D)  $4900\Omega$

**16. A particle executes the simple harmonic motion with an amplitude ' A '. The distance travelled by it in one periodic time is**

- (A)  $A/2$
- (B)  $A$
- (C)  $2A$

(D) 4A

**17. A transverse wave is propagating on the string. The linear density of a vibrating string is  $10^{-3}$  kg/m. The equation of the wave is  $Y = 0.05 \sin(x+15t)$  where  $x$  and  $Y$  are in metre and time in second. The tension in the string is**

- (A) 0.2 N
- (B) 0.250 N
- (C) 0.225 N
- (D) 0.325 N

**18. A layer of atmosphere that reflects medium frequency radio waves which is ineffective during night, is**

- (A) F layer
- (B) E layer
- (C) Stratosphere
- (D) Thermosphere

**19. Two parallel conductors carrying unequal currents in the same direction \_\_\_\_\_**

- (A) Neither attract nor repel each other
- (B) Repel each other
- (C) Attract each other
- (D) Will have rotational motion

**20. In air, a charged soap bubble of radius 'R' breaks into 27 small soap bubbles of equal radius 'r'. Then the ratio of mechanical force acting per unit area of big soap bubble to that of a small soap bubble is**

- (A) 1/81

- (B) 3/1
- (C) 1/3
- (D) 9/1

**21. For a metallic wire, the ratio of voltage to corresponding current is**

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- (B) Increases with rise in temperature.
- (C) Increases or decreases with rise in temperature depending upon the metal.
- (D) Decreases with rise in temperature.

**22. If radius of the solid sphere is doubled by keeping its mass constant, the ratio of their moment of inertia about any of its diameter is**

- (A) 1:8
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**23. Two identical wires of substances 'P' and 'Q' are subjected to equal stretching force along the length. If the elongation of 'Q' is more than that of 'P', then**

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**24. When the electron in hydrogen atom jumps from fourth Bohr orbit to second Bohr orbit, one gets the**

- (A) Second line of Balmer series.
- (B) First line of Balmer series.

- (C) First line of Pfund series.
- (D) Second line of Paschen series.

**25. The luminous border that surrounds the profile of a mountain just before sun rises behind it, is an example of**

- (A) Dispersion
- (B) Total internal reflection
- (C) Interference
- (D) Diffraction

**26. Two pendulums begin to swing simultaneously. The first pendulum makes nine full oscillations when the other makes seven. The ratio of the lengths of the two pendulums is**

- (A) 49/81
- (B) 64/81
- (C) 8/9
- (D) 7/9

**27. When light enters glass from vacuum, then the wavelength of light**

- (A) Decreases.
- (B) Becomes zero.
- (C) Remains same.
- (D) Increases.

**28. Which one of the following statement is correct ?**

- (A) Surface energy is potential energy per unit length.
- (B) Surface tension is work done per unit area.
- (C) Surface tension is work done per unit length.
- (D) Surface energy is work done per unit force.

**29. An aircraft is moving with uniform velocity 150 m/s in the space. If all the forces acting on it are balanced, then it will**

- (A) Keep moving with same velocity
- (B) Remain floating at its place
- (C) Escape in space
- (D) Fall down on earth

**30. In the study of transistor as an amplifier, the ratio of collector current to emitter current is 0.98 then the ratio of collector current to base current will be**

- (A) 99
- (B) 49
- (C) 50
- (D) 98







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