

Time: 20 Minutes

Max. Marks: 17

SECTION "A" (MULTIPLE CHOICE QUESTION)

1. Choose the correct answer for each from the given options:
 - (i) When the temperature of air rises, the speed of sound waves increases because:
 - The frequency of wave increase
 - The wavelength of wave increases
 - Both the frequency and wavelength increases
 - Neither frequency nor wavelength increases
 - (ii) The experimental evidence of transverse nature of light is:
 - Diffraction • interference • polarization • dispersion
 - (iii) A lens of linear magnification 3 is placed between an object and a fixed screen. If the size of the image obtained is 6cm, the size of the object will be:
 - 0.5 cm • 2 cm • 3 cm • 18 cm
 - (iv) A bullet is fired horizontally with 20 m/s. In the absence of air friction, its horizontal velocity component after 2s will be:
 - 40 m/s • 20 m/s • 10 m/s • 5 m/s
 - (v) The angular momentum of a particle moving in a circle is conserved if:
 - net force acting on the particle is zero
 - net torque acting on the particle is zero
 - the acceleration of the particle is zero
 - net angular displacement of the particle is zero
 - (vi) If the velocity of a body is doubled and the mass is reduced to one fourth of its initial value, the kinetic energy will:
 - become four-fold • remain the same • become halved
 - (vii) An object is falling through a viscous fluid with terminal velocity. Its velocity:
 - is decreasing
 - is increasing • remain constant • becomes zero
 - (viii) A force of 8N is applied to the spanner perpendicularly at a distance of 0.15m from the centre of the nut, the moment of the force acting on the nut is:
 - 1.2 N.m • 1.5 N.m • 2.1 N.m • 3 N.m
 - (ix) Artificial gravity in spacecraft can be created by:
 - translatory motion • vibratory motion
 - spin motion • orbital motion
 - (x) Two perpendicular vectors having magnitudes of 4 units and 3 units are added. Their resultant has a magnitude of:
 - 5 units • 7 units • 12 units • 25 units
 - (xi) The luminous intensity of light is measured in:
 - decibel • candela • diopetre • watt / m²
 - (xii) A 600N man runs up a stair of 4m height, in 3 seconds. The power needed is:
 - 240 watts • 350 watts • 450 watts • 800 watts
 - (xiii) Intensity of sound is measured in:
 - $\frac{\text{watt}}{\text{m}^2}$ • $\frac{\text{joule}}{\text{m}}$ • $\frac{\text{watt}}{\text{s}}$ • $\frac{\text{watt}}{\text{m}}$
 - (xiv) The dimensions of angular velocity are:
 - ML⁰T⁻¹ • ML⁰T⁻² • M⁰L⁰T⁻¹ • M⁰L⁰T⁻²
 - (xv) A body, moving along the circumference of a circle, completes two revolutions. If the radius of the circle is R, the ration of its displacement to the covered path will be:
 - zero • πR • $2\pi R$ • $4\pi R$
 - (xvi) The focal length of a magnifying glass is equal to the least distance of distinct vision. Its angular magnification will be:
 - 6 • 5 • 2 • 1
 - (xvii) When Newton's rings are observed by reflected light, the centre of rings appears dark due to:
 - Phase reversal only • Path difference zero only
 - Intensity of light being maximum
 - Both phase reversal and path difference being zero