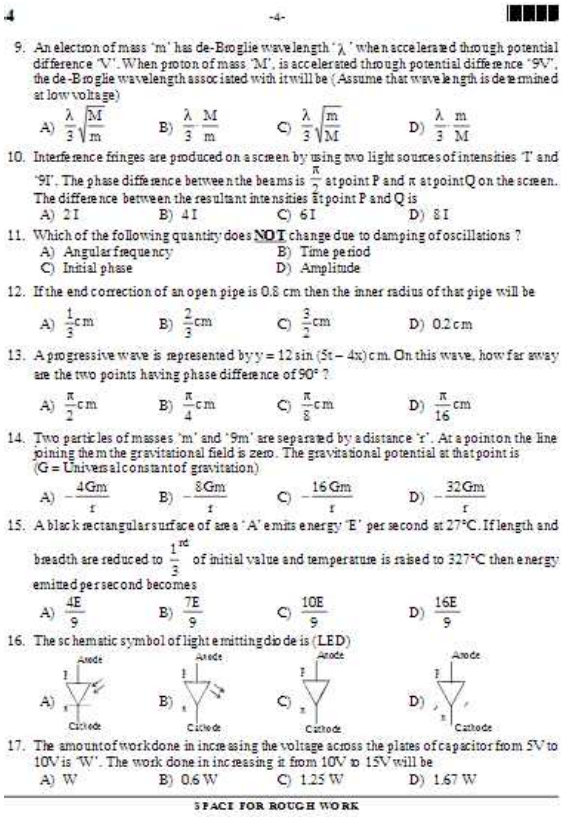
Mht Cet Question Papers Pdf Download



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9. An electron of mass 'm' has de-Broglie wavelength 'λ' when accelerated through potential difference 'V'. When proton of mass 'M', is accelerated through potential difference '9V', the de-Broglie wavelength associated with it will be (Assume that wavelength is determined at low voltage)
A) $\frac{\lambda}{3}\sqrt{\frac{M}{m}}$ B) $\frac{\lambda}{3}\frac{M}{m}$ C) $\frac{\lambda}{3}\sqrt{\frac{m}{M}}$ D) $\frac{\lambda}{3}\frac{m}{M}$

10. Interference fringes are produced on a screen by using two light sources of intensities 'I' and '9I'. The phase difference between the beams is $\frac{\pi}{2}$ at point P and π at point Q on the screen. The difference between the resultant intensities at point P and Q is
A) 2I B) 4I C) 6I D) 8I

11. Which of the following quantity does **NOT** change due to damping of oscillations ?
A) Angular frequency B) Time period
C) Initial phase D) Amplitude

12. If the end correction of an open pipe is 0.8 cm then the inner radius of that pipe will be
A) $\frac{1}{3}$cm B) $\frac{2}{3}$cm C) $\frac{3}{2}$cm D) 0.2 cm

13. A progressive wave is represented by $y = 12\sin(5t - 4x)$ cm. On this wave, how far away are the two points having phase difference of 90° ?
A) $\frac{\pi}{2}$cm B) $\frac{\pi}{4}$cm C) $\frac{\pi}{8}$cm D) $\frac{\pi}{16}$cm

14. Two particles of masses 'm' and '9m' are separated by a distance 'r'. At a point on the line joining them the gravitational field is zero. The gravitational potential at that point is (G = Universal constant of gravitation)
A) $-\frac{4Gm}{r}$ B) $-\frac{8Gm}{r}$ C) $-\frac{16Gm}{r}$ D) $-\frac{32Gm}{r}$

15. A black rectangular surface of area 'A' emits energy 'E' per second at 27°C. If length and breadth are reduced to $\frac{1^{rd}}{3}$ of initial value and temperature is raised to 327°C then energy emitted per second becomes
A) $\frac{4E}{9}$ B) $\frac{7E}{9}$ C) $\frac{10E}{9}$ D) $\frac{16E}{9}$

16. The schematic symbol of light emitting diode is (LED)
A) B) C) D)

17. The amount of work done in increasing the voltage across the plates of capacitor from 5V to 10V is 'W'. The work done in increasing it from 10V to 15V will be
A) W B) 0.6 W C) 1.25 W D) 1.67 W

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