

13. The momentum of a photon having frequency 3×10^{11} MHz is
- (A) $6.6 \times 10^{-25} \text{ Kg ms}^{-1}$.
 - (B) $6.6 \times 10^{-28} \text{ Kg ms}^{-1}$.
 - (C) $3.3 \times 10^{-28} \text{ Kg ms}^{-1}$.
 - (D) $3.3 \times 10^{-24} \text{ Kg ms}^{-1}$.
14. If the speed of sound in hydrogen at standard temperature and pressure (STP) is v , that in helium at STP will be
- (A) $v/\sqrt{2}$.
 - (B) $v/2$.
 - (C) $2v$.
 - (D) $\sqrt{2}v$.
15. A wave travelling in a medium causes particle displacements given by $y = a \sin(\omega t - kx)$. The ratio of the maximum particle speed to the speed with which the wave propagates is
- (A) ak .
 - (B) ω/k .
 - (C) $a\omega$.
 - (D) ωk .
16. Two rooms of equal volume are connected by an open passage and are maintained at different temperatures. Which of the following statements concerning the number of air molecules in the two rooms is correct
- (A) Both the rooms will have equal number of air molecules.
 - (B) The room at higher temperature would have smaller number of air molecules.
 - (C) The room at the higher temperature would have higher number of air molecules.
 - (D) The room at lower temperature would have higher number of air molecules because it would have a lower pressure.