Physicsaholics

DPP – 1

Video Solution on Website:- https://physicsaholics.com/home/courseDetails/46

Video Solution on YouTube:- https://youtu.be/u1PnH3mSgPw

Written Solution on Website:- https://physicsaholics.com/note/notesDetalis/19

Q 1. Mark the correct statement
(a) Rest Mass of photon is zero.
(b) Number of photons is a conserved quantity
(c) Momentum of photon is zero.
(d) None of these

Q 2. For given energy of photon, E = 3.03×10^{-19} J corresponding wavelength will be: (h = 6.6×10^{-34} sec, C = 3×10^{8} m/sec.)
(a) 65.6 nm (b) 6.56 nm
(c) 3.4 nm (d) 656 nm

Q 3. A moving hydrogen atom absorbs a photon of wavelength 122 nm and comes to rest. Then speed of moving hydrogen was
(a) 3.25 m/s (b) 6.5 m/s
(c) 1.75 m/s (d) 8.25 m/s

Q 4. The number of photons of light having wavelength 100nm which can provide 1J energy is nearly:
(a) 10^{7} photons (b) 5×10^{20} photons
(c) 5×10^{17} photons (d) 5×10^{7} photons

Q 5. The equation E = pc is valid -
(a) for an electron as well as for photon
(b) for an electron but not for a photon
(c) for a photon but not for an electron
(d) neither for an electron nor for a photon

Q 6. The energy of photon of visible light (400 nm to 700 nm) with maximum wavelength in eV is
(a) 1 (b) 1.77 (c) 3.2 (d) 7

Q 7. What is the momentum of a photon having frequency 1.5×10^{13} Hz?
(a) 3.3×10^{-29} kg m/s (b) 3.3×10^{-34} kg m/s
(c) 6.6×10^{-34} kg m/s (d) 6.6×10^{-30} kg m/s

Q 8. The energy of photon having λ = 620Å in eV is
(a) 10
(b) 20
(c) 2

(d) 1

Q 9. A TV station is operated at 100 MW with a signal frequency of 10 Mhz. Calculate the number of photons radiated per second by its antenna?
(a) 2.5×10^{34}
(b) 1.5×10^{34}
(c) 5×10^{34}
(d) 6×10^{34}

Q 10. Wavelength emitted by a bulb is halved and power is doubled then number of photons emitted (per second) by it will
(a) Halved
(b) Doubled
(c) Quadrupled
(d) Remain same

Answer Key

Q.1 a	**Q.2 d**	**Q.3 a**	**Q.4 c**	**Q.5 c**
Q.6 b	**Q.7 a**	**Q.8 b**	**Q.9 b**	**Q.10 d**