ARJUNA (NEET)

STRUCTURE OF ATOM

DPP-3

1. Wave number is
   (A) λ (B) $1/\lambda$
   (C) c/λ (D) $\lambda \times v$

2. Calculate the number of protons, electrons and neutrons in the following:
   Chloride ion (Cl^-) with Z = 17, A = 35

3. Calculate the wavelength, frequency and wave number of a light whose time period is 4×10^{-8} s.

4. What is the symbol of the species with number of electrons equal to 36, protons equal to 35 and neutron equal to 45?

5. Calculate the frequency, wave number of the microwaves with wavelength 4×10^7 nm.

6. Calculate the wavelength, frequency and wave number of a light wave whose time period is 3×10^{-10} s.

7. Calculate the frequency and wavelength of photon with energy 3.98×10^{-15} J.

8. Which of the following have maximum wavelength?
   (A) Cosmic rays (B) γ - rays
   (C) Micro waves (D) Radio waves

9. Which of the following have maximum frequency?
   (A) Cosmic rays (B) γ – rays
   (C) Micro waves (D) Radio waves

10. Unit of wavelength is
    (A) m (B) nm
    (C) $\overset{0}{A}$ (D) All of these

ANSWERS KEY

1. (B)

2. Cl^- with Z = 17, A = 35
Number of protons = 17
Number of electrons = 17 + 1 (As one negative charge which means gain of electron = 18)
Number of neutrons = A – Z = 35 – 17 = 18

3. frequency = $2.5 \times 10^7\ s^{-1}$
Wavelength = 12 m
Wave number = $8.3 \times 10^{-2}\ m^{-1}$

4. $^{80}_{35}Br^-$

5. Wave Number = $25\ m^{-1}$
Frequency = $7.5 \times 10^9\ s^{-1}$

6. Frequency = $3.3 \times 10^9\ s^{-1}$
Wavelength = 9×10^{-2} m
Wave Number = $11.11\ m^{-1}$

7. Frequency = $6.0 \times 10^{18}\ s^{-1}$ (Hz)
Wavelength = 0.5 $\overset{0}{A}$ (1 $\overset{0}{A}$ = 10^{-10} m)

8. (D)

9. (A)

10. (D)

Note - If you have any query/issue

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