

Lesson 6 – Question Bank

[A] Answer the following in detail

1. Write the short note on duality exhibited by light
2. What are matter waves? Describe experiment in support of the existence of matter waves.
3. Discuss de-Broglie theory of matter wave
4. Discuss the dual nature of matter and waves. Derive the expression for the de-Broglie wavelength.
5. What is de-Broglie hypothesis? Show that the wavelength λ associated with an electron of mass m and kinetic energy E is given by $\frac{h}{\sqrt{2mE}} = \lambda$
6. What are the matter waves? Show that the de-Broglie wavelength of a material particle of momentum is $\frac{h}{p}$.
7. What do you understand by dual nature of matter? Explain de-Broglie hypothesis.