

Model Question Paper
Electromagnetic waves and wave options - Part I
12th Standard

Physics

Reg.No. :

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I. Answer all the Questions.
II. Use blue pen only.

Time : 01:00:00 Hrs

Total Marks : 85

5 x 1 = 5

Section-A

- 1) In an electromagnetic wave
(a) power is equally transferred along the electric and magnetic fields (b) power is transmitted in a direction perpendicular to both the fields
(c) power is transmitted along electric field (d) power is transmitted along magnetic field
- 2) Electromagnetic waves are
(a) Transverse (b) longitudinal (c) may be longitudinal or transverse (d) neither longitudinal nor transverse
- 3) Refractive index of glass is 1.5. Time taken for light to pass through a glass plate of thickness 10cm is
(a) 2×10^{-8} s (b) 2×10^{-10} s (c) 5×10^{-8} s (d) 5×10^{-10} s
- 4) In an electromagnetic wave the phase difference between electric field \vec{E} and magnetic field is \vec{B}
(a) $\frac{\pi}{4}$ (b) $\frac{\pi}{2}$ (c) π (d) zero
- 5) atomic spectrum should be
(a) pure line spectrum (b) emission band spectrum (c) absorption line spectrum (d) absorption band spectrum

Section-B

- 6) what are the electromagnetic waves?
- 7) Distinguish the corpuscle and photon?
- 8) What is Tyndall scattering?
- 9) Why the sky appears blue in colour?
- 10) What is principle of superposition of waves?

5 x 3 = 15

Section-C

- 11) Mention the characteristics of electromagnetic waves.
- 12) What is fluorescence and phosphorescence?
- 13) Explain Huygen's principle.
- 14) What are Newton's rings? Why the centre of the Newton's rings is dark?
- 15) a) Describe an experiment to demonstrate transverse nature of light.

5 x 5 = 25

(OR)

- b) State and explain Brewster's law.

Section-D

- 16) Give the source and uses of electromagnetic waves.
- 17) Explain emission and absorption spectra.
- 18) What is Raman Effect? Explain Raman scattering of light with the help of energy level diagram.
- 19) Derive an expression for bandwidth of interference fringes in young's double slit experiment.

4 x 10 = 40
