# TEST QUESTIONS(A1B)

## 12th Standard

## Physics

Date : 28-11-24

Reg.No. : | | | | | | |

Exam Time : 01:00 Hrs Total Marks : 100

2 Marks 8 x 2 = 16

1) Define magnetic flux.

2) State Coulomb's inverse law.

3) What is magnetic susceptibility?

4) State Faraday's laws of electromagnetic induction.

5) How is Eddy current produced? How do they flow in a conductor?

6) What is meant by mutual induction?

7) State Huygens' principle.

8) Differentiate between Fresnel and Fraunhofer diffraction.

3 Marks 12 x 3 = 36

9) Compute the torque experienced by a magnetic needle in a uniform magnetic field.

10) Calculate the magnetic field at the centre of a square loop which carries a current of 1.5 A, length of each side being 50 cm.

11) Obtain an expression for motional emf from Lorentz force.

12) What do you understand by self - inductance of a coil? Give its physical significance.

13) How will you induce an emf by changing the area enclosed by the coil?

14) Mention the various energy losses in a transformer.

15) Compare the electromagnetic oscillations of LC circuit with the mechanical oscillations of blockspring system qualitatively to find the expression for angular frequency of LC oscillator.

16) What is Fresnel's distance? Obtain the equation for Fresnel's distance.

17) Differentiate between polarised and unpolarised light.

18) State and obtain Malus' law. (or) State Malus' Law.

19) Discuss about pile of plates.

20) Discuss about astronomical telescope.

5 Marks 10 x 5 = 50

21) Deduce the relation for the magnetic field at a point due to an infinitely long straight conductor carrying current using Biot-Savart law.

22) Obtain a relation for the magnetic field at a point along the axis of a circular coil carrying current using Biot-Savart law.

23) Discuss the working of cyclotron in detail.

24) Explain the principle and working of a moving coil galvanometer.

25) Calculate the magnetic field inside and outside of the long solenoid using Ampere's circuital law.

26) Prove law of reflection using Huygens' principle.

27) Obtain the equation for resultant intensity due to interference of light.

28) Discuss about the simple microscope and obtain the equations for magnification for near point focusing and normal focusing.

29) Obtain the equation for bandwidth in Young's double slit experiment.

30) Discuss diffraction at single slit and obtain the condition for $n^{th}$ minimum.

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