B.Sc.(CS) (Sem.–3)
# OPTICS
Subject Code : BCS-303
M.Code : 71775
Date of Examination : 16-12-22

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.**

SECTION-A

1. **Answer briefly :**

a) When two sources of light are said to be coherent?

b) Define interference.

c) Why are the fringes circular in Newton's rings set-up?

d) Define Reflected and transmitted light.

e) What is path difference?

f) "*The diffraction pattern is generally not observed with an extended source of light.*" Why?

g) Differentiate between Fresnel and Fraunhoffer diffraction.

h) Can diffraction occur for virtual images?

i) What is Polarization?

j) What is double reflection?

SECTION-B

2. Discuss interference in thin films due to transmitted light and hence find the path difference.

3. Calculate the displacement of the fringes when a thin transparent plate is introduced in the path of one of the interfering beams of a biprism.

4. Describe Young's double slit experiment. Explain how the fringes are formed and discuss their shape and size.

5. Describe Huygen's frensel theory and also write the advantages and disadvantages.

6. Define resolving power. Discuss the resolving power of a grating.

7. Define Malus', law. Derive an expression showing how the light intensity varies with the angle between the transmission axes of the polarizer and the analyser.