

**Faculty of Science**  
**B.Sc (Physics) II-Year, CBCS –IV Semester Regular/Backlog**  
**Examinations –January, 2021**  
**PAPER: OPTICS**

Time: 2 Hours

Max Marks: 80

- I. Answer any **Four** from the following questions (4x20=80 Marks)
1. Describe the principle and working of Fresnel's biprism. Also determine the thickness of a thin glass plate using biprism.
  2. Describe construction and working of Michelson's interferometer, with theory. How the wavelength of monochromatic light is determined using it.
  3. Discuss Fraunhofer diffraction due to a single slit. Explain the distribution of intensity of light in the diffraction pattern.
  4. What are Fresnel's half period zones? Give the theory of Fresnel's diffraction of light at a straight edge and explain the intensity distribution I diffraction pattern.
  5. Describe the construction and working of Nicol Prism. How is it used as polarizer and an analyzer?
  6. Define specific rotation. How it is experimentally determined using Laurent's half shade polarimeter?
  7. What is spherical aberration? Describe various methods to minimize spherical aberration.
  8. What is an optical fiber? Draw the block diagram of an optical fiber communication system and explain the function of each block.

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