UNIVERSITY DEPARTMENT OF PHYSICS
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B.SC. PHYSICS (HONS.)
SEMESTER - IV
PAPER – CC VIII: OPTICS
MODEL QUESTIONS

GROUP A

Short Answer Type Questions

1. Explain electromagnetic nature of light.
2. Write the Fresnel's assumptions in diffraction of light.
3. Define wave and wavefront. Write the relation between wave and wavefront.
4. Explain fringes of equal thickness.
5. Define Interference and diffraction of light. How these two phenomena explain about the nature of light?
6. What do you mean by path difference and phase difference between two light waves? Write the relation between them.
7. Explain Huygens principle. What do you mean by secondary wavelets of light? Write the value of velocity of secondary wavelets.
8. Discuss about the idea of formation of fringes in case of Interference of light.
9. Write the differences between Fresnel and Fraunhofer diffraction.

GROUP B

Long Answer Type Questions

1. Explain Young's Double slit experiment. Obtain the equation of intensity for the interference of light. Discuss the condition for bright and dark fringes.
2. What is zone plate? How it can be constructed? Discuss about the theory of a zone plate and multiple foci of a zone plate.
3. By which phenomenon of light Newton's rings are formed? How will you determine the wavelength of monochromatic light using Newton's rings? Explain in detail.
4. What is half-period zone? Write the detail explanation of rectilinear propagation of light.
5. Discuss the theory and one of the applications of Fabry-Perot interferometer.
6. Define resolving power and write Rayleigh criterion for resolution. Obtain equation for resolving power of telescope.

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