

B.Sc. (H) Physics  
Semester- III  
Class Test 2023-24  
Laser and Matter

Duration: 1 hr

Maximum Marks: 8

**Attempt any TWO questions in all. Question no. 1 is compulsory.**

1. Attempt all questions.
  - a. Distinguish between “Fizeau” and “Haidinger” Fringes? 1
  - b. How is a zone plate different from the convex lens? 1
2.
  - a. What are Newton’s rings? Give the necessary theory for their formation. 4
  - b. A soap film is viewed at an angle of  $35^\circ$  to the normal. The thickness of the film is  $5 \times 10^{-5}$  cm. Find the wavelengths in the visible light which will be absent in reflected light. Take  $\mu = 4/3$ . 2
3.
  - a. Discuss the Fresnel diffraction pattern due to straight edge. 4
  - b. Light of wavelength  $5000 \text{ \AA}$  falls on a zone plate where the first ring has a diameter of 2mm. Find the position of the brightest spot. 2

*Mamta*

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