

U.G. 2nd Semester Examination - 2021

PHYSICS

[HONOURS]

Course Code : PHYS-H-CC-P-04

[PRACTICAL]

Full Marks : 20

Time : 2 Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any **four** questions:

5×4=20

1. a) Why a glass plate inclined at 45° is employed in Newton's ring experiment?
b) Why the centre of the fringe is dark?
c) What type of lens is employed in this experiment?
d) How the thin wedge shaped film is produced in this experiment? Explain with a ray diagram.

1+1+1+2
2. a) Write down the relation between refractive index and angle of prism.

- b) Draw the angle of incidence vs. deviation curve for a prism.
- c) Why sodium light is used not a white light to find the refractive index of a prism?
- d) Show using a ray diagram that deviation of a ray passing through a prism is $\delta = i_1 + i_2 - A$.

Where i_1 is angle of incidence and i_2 is angle of emergence of the ray A is the angle of the prism?

$\frac{1}{2} + 1 + 2 + 1\frac{1}{2}$

3. a) What are stationary waves?
b) Define nodes and antinodes.
c) How the frequency of a wire and the tension applied on it are related?

2+2+1
4. a) What do you mean by grating element and corresponding points?
b) What is ghost line?
c) What is the SI unit of wave length?
d) Define the dispersive power of a grating.

2+1+1+1
5. a) What is Lissajous pattern?
b) Write down the general expression when two SHM having same frequencies the superpose at right angle to each other.

[Turn over]

- c) How the pattern changes if frequency ratio becomes 1:2? 1+2+2
6. a) In Fresnel biprism experiment what role does the biprism play? Show and explain by a ray diagram.
- b) What type of fringes are produced by the Fresnel's biprism?
- c) How do the biprism fringes differ from Newton's rings? 1+1+1+2
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