

**U.G. 2nd Semester Examination - 2020**

**PHYSICS**

[HONOURS]

Course Code : PHS/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) 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
2. 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.  
c) How the pattern changes if frequency ratio becomes 1:2? 1+2+2

3. 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?

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

4. 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
5. a) Why a glass plate inclined at  $45^\circ$  is employed in Newton's ring experiment?  
b) Why the centre of the fringe is dark?

[Turn Over]

- 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

6. 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

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