

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Summer Examination-2022

Subject Name : Waves and Optics

Subject Code : 4SC04WAO1

Branch: B.Sc. (Chemistry, Physics)

Semester: 4

Date: 07/05/2022

Time: 11:00 To 02:00

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

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<b>Q-1</b>	<b>Attempt the following questions:</b>	<b>(14)</b>
	a) What is superposition of wave?	01
	b) Define: Polarization.	01
	c) What are the types of wavefront?	01
	d) State Huygen's principle.	01
	e) What are the types of interference?	01
	f) What is Doppler effect?	01
	g) What is sound wave?	01
	h) Explain Monochromatic wave.	01
	i) Define: Positive zone plate.	01
	j) What is beats?	01
	k) What is plane diffraction grating?	01
	l) What is the area of each half period zone?	01
	m) Draw the construction of Fresnel diffraction.	01
	n) Whose angle of deviation is minimum?	01

**Attempt any four questions from Q-2 to Q-8.**

<b>Q-2</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Write a note on polarization by reflection.	07
	b) Derive an equation of velocity of sound in a solid material.	07
<b>Q-3</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Discuss Doppler effect in detail.	07
	b) Explain the concept of Lissajous figures.	07
<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Describe the construction and theory of zone plate.	07
	b) Derive Newton's rings and its formation. Explain the interference due to a wedge shaped film and obtain expression for the fringe width.	07



