## C.U.SHAH UNIVERSITY Summer Examination-2018

## Subject Name: Waves and Optics

	Subject Code: 4SC04WAO1				Branch: B.Sc. (Chemistry, Physics)			
ł	Semeste	r: 4	Date: 05/05/2018	3 '	<b>Fime: 10:30</b> 7	Fo 01:30	Marks: 70	
	<ul> <li>Instructions:</li> <li>(1) Use of Programmable calculator &amp; any other electronic instrument is prohibited.</li> <li>(2) Instructions written on main answer book are strictly to be obeyed.</li> <li>(3) Draw neat diagrams and figures (if necessary) at right places.</li> <li>(4) Assume suitable data if needed.</li> </ul>							
Q-1		Attempt tl	he following questi	ions:				(14)
Atten	a) b) c) d) e) f) g) h) i) j) k) l) m) n) n) npt any f	Define Zor What is so What is po Define bea What is sir What is EN What is ref Explain mo Explain the What is acc What is su	erture oppler effect? ne plate und wave? darization? ts. ngle slit?	e?				
Q-2	(a)	What is int	<b>ll questions</b> terference of light? I	Explain	the division of	f amplitude a	nd wave front	(14) 07
Q-3	(b) (a)	How many Attempt a A zone pla	r examples. types of diffraction <b>II questions</b> te has focal length 5 h at $\lambda = 5000 \text{A}^0$ .	1			nat will be its	07 (14) 7
	(b)	Explain the figure.	e Fraunhofer diffrac	ction and	l intensity pat	tern at single	slit with proper	7
Q-4	(a)	A plane wa	<b>ll questions</b> avefront of light of y pattern is observed					(14) 8



		aperture. Find the radius of the 100th half period element and the area of a half period zone.	
	<b>(b)</b>	Explain Huygens's principle.	6
Q-5		Attempt all questions	(14)
	(a)	Explain the diffraction phenomenon of light. What is the difference between interference and diffraction?	7
	<b>(b)</b>	State and Explain superposition of two perpendicular harmonic oscillations.	7
Q-6		Attempt all questions	(14)
•	(a)	What is Lissajous figure? Describe.	6
	<b>(b)</b>	Explain the formation of fringes by Michelson's interferometer with neat and clean figure.	8
Q-7		Attempt all questions	(14)
· ·	(a)	Explain Fresnel Biprism with suitable figure.	7
	<b>(b)</b>	Explain image formation in Lloyd's Mirror.	7
Q-8		Attempt all questions	(14)
-	<b>(a)</b>	Define types of interference and give condition of constructive and destructive	7
	<b>(</b> )	interference in term of phase and path difference.	-
	<b>(b</b> )	Explain the Young double slit experiment briefly.	1

