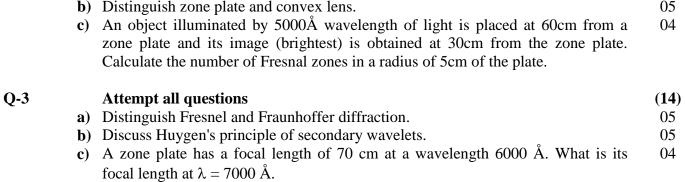
	Enrollme	ent No: Exam Seat No:				
	C.U.SHAH UNIVERSITY					
	Winter Examination-2015					
	Subject N	Name : Optics				
	Subject (Code: 4SC04PHC1 Branch: B.Sc. (All)				
	Semester Instructio					
	(1) U (2) II (3) I	Use of Programmable calculator & any other electronic instrument is prohibited. Instructions written on main answer book are strictly to be obeyed. Draw neat diagrams and figures (if necessary) at right places. Assume suitable data if needed.				
Q-1	a) b) c) d) e) f) g) h) i) j) k) l) m)	Attempt the following questions: What is optical path? Define interference of light. Define diffraction of light. Draw interference and diffraction pattern of light. How many types of diffraction of light? What is Zone plate? Draw electromagnetic wave nature of light. Define resolving power. Define grating element. What is dispersive power? Write uses of telescope. Define plan diffraction grating. Write uses of microscope. Write uses of prism.	(14)			
Atte	a)	Distinguish zone plate and convex lens.	(14) 05 05 04			





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Q-4	a) b)	Attempt all questions Explain in detail Fermat's principle and deduce law of reflection from it. Explain Fresnel's explanation of the rectilinear propagation of light and deduce $r_n = \sqrt{n}$.	07 07
Q-5		Attempt all questions	(14)
	a)	Explain in detail theory of zone plate and show that a zone plate acts as a converging lens.	07
	b)	Distinguish prism spectra and grating spectra. Discuss resolving power of prism.	07
Q-6		Attempt all questions	(14)
	a)	Explain how to determine the wavelength of a spectral line by the transmission grating.	05
	b)	Discuss resolving power of grating.	05
	c)	How many orders will be visible if the wavelength of the incident radiation is 5000Å and the number of lines on the grating is 2620 in one inch?	04
Q-7		Attempt all questions	(14)
	a)	Explain in detail Frounhofer diffraction at double slit by geometry method.	07
	b)	Discuss the theory of plane diffraction grating and its condition.	07
Q-8		Attempt all questions	(14)
	a)	Write short notes on (1) resolving power of telescope and (2) resolving power of microscope.	07
	b)	Discuss Rayleigh's criteria for resolution. How resolution can increase by different ways?	07

