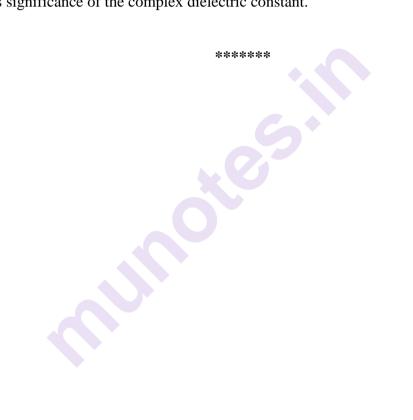
## M.Sc. (Physics) Third Semester MSc23108 - Optional - X-Rays-I Paper-IV

	Pages : ne : Th	2 aree Hours $\begin{array}{c} & & \\ & & \\ & & 1 \\ & & 8 \\ & & 0 \\ & & 3 \\ & & \end{array}$	GUG/W/18/230 Max. Marks :	
1.	a)	Either What are the continuous and characteristics x-ray spectra? What are their p application?	ractical	8
	b)	Discuss the vacuum system that can be used for function of x-ray tube.		8
		OR		
	e)	Explain the use of a Pelletron for the generation of x-ray.		8
	f)	What are the insertion devices? How do they enhance the quality of Synchr radiation?	otron	8
2.		Either		
	a)	Explain the experimental setup of x-ray Fluorescence spectroscopy.		8
	b)	Explain the phenomenon of x-ray absorption and how x-ray absorption coe determined from the spectra.	fficients are	8
		OR		
	e)	What are Auger electron? How they differ from photoelectron?		8
	f)	Discuss micro radiology and their application?		8
3.	a)	Either How elemental composition of materials is determined by using x-ray fluor spectroscopy.	rescence	8
	b)	What is x-ray emission spectroscopy. How quality of x-ray is influed by va discuss with suitable example.	rious factors,	8
		OR		
	e)	What are the main differences between Bragg's and double crystal spectrog Double crystal spectrograph is superior over single spectrograph.	raph. How	8
	f)	What is role of dispersive power in precision x-ray spectroscopy? Does it a efficiency of spectrometer? How wavelength dispersive x-ray spectroscopy ray diffraction with crystals.		8
4.	a)	Discuss the chemical effect in x-ray absorption spectra.		8
	b)	Explain XANES and EXAFS with application of each in detail.		8

e)	Derive an expression for dielectric constant of materials on the basis of dispersion theory.	8
f)	State and explain factor affecting the intensity of diffraction line.	8
	Attempt all questions.	
a)	Described sealed x-ray tube	4
b)	Discuss theory of photoelectron spectroscopy.	4
c)	Compare advantages and disadvantages of wavelength and energy dispersive spectroscopies.	4
d)	Discuss significance of the complex dielectric constant.	4



5.