M.Sc.(Physics) Sem-III

MSc23108 - X-Rays

P. Pages : 1 **GUG/S/19/2309**

Time : Three Hours * 1 7 0 7 * Max. Marks : 80

---

1. Either

a) Discuss various types of demountable and sealed x-ray tubes. **8**

b) Explain basics of high tension circuit used for operation of x-ray tubes. **8**

OR

e) Discuss characteristics of isochromats. **8**

f) Discuss production of radiation from storage rings. **8**

2. Either

a) Discuss x-ray fluorescence analysis and its applications. **8**

b) Explain the physical processes responsible for the absorption of x-rays in a material. **8**

OR

e) Describe the techniques of Auger electron spectroscopy. **8**

f) Discuss various applications of Auger electron spectroscopy. **8**

3. Either

a) Explain Bragg and double crystal spectrograph state examples. **8**

b) What do you understand by the resolving power of spectrographs. **8**

OR

e) Discuss origin of regular and irregular doublets observed in x-ray spectra. **8**

f) Explain the relative intensities of x-ray lines. **8**

4. Either

a) Explain the process of determination of crystal structure by using reciprocal lattice determination. **8**

b) Discuss the method of determination of crystal structure by using Laue method. **8**

OR

e) How x-ray diffraction spectrograph is used to determine grain size of materials. **8**

f) Discuss uses of x-ray radiation obtained from synchrotron from radiations. **8**

5. Attempt all questions.

a) Discuss principles of Bremsstrahlung. **4**

b) Define x-ray absorption coefficient. **4**

c) State the factors on which intensities of x-ray depends. **4**

d) Discuss refraction of x-rays. **4**

****