Roll No. | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

Ph.D in Faculty of Applied Science (Physical Science)

TECHNIQUES IN EXPERIMENTAL PHYSICS

M.Code : 77389

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT question.
2. Each question carry TWENTY marks.

1. a) What is the working principle of optical microscope? Discuss the construction and working of optical microscope.

   b) Discuss the dark field and bright field illumination modes of optical microscope.

2. a) What is stereomicroscopy? Discuss the construction and working of stereo microscope.

   b) What is the working principle of atomic force microscope? Discuss the working of atomic force microscope.

3. a) How one can measure the particle morphology, particle size and particle size distribution?

   b) What is secondary ion mass spectrometry? Discuss its importance and different applications.

4. a) What is glass transition temperature? Explain thermogravimetric analysis in detail.

   b) What is the working principle of differential thermal analysis? Explain the working of differential thermal analysis.

5. a) What do you mean by X-ray diffraction? Discuss powder diffraction method in detail.

   b) What is X-ray fluorescence? Discuss wavelength and energy dispersive X-ray fluorescence in detail.

6. a) Discuss the construction and working of photo multiplier tube.

   b) What is luminescence? Discuss photoluminescence in detail.

7. a) What do you mean by LINAC? Discuss its construction.

   b) Discuss any one experimental method for probing nuclear structure.

8. a) Discuss the construction and working of Compton suppressed Ge detectors.

   b) What is the importance of neutron detectors? Discuss different applications of neutron detectors.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.