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CC-284

M. Sc. EXAMINATION, May 2018

(Third Semester)

(Re-appear Only)

PHYSICS

PHY607B

Characterization of Materials

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

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Unit I

1. (a) What is the basic principle of X-ray topographic technique ? Explain it with neat diagrams.

(b) Explain Lang technique for recording X-ray topography. **10,10**

2. Write in detail :

(a) Double crystal diffractometry

(b) Neutron scattering with reference to light elements. **10,10**

Unit II

3. Explain the instrumentation and working of scanning electron microscope. **20**

4. Write notes on the following technique :

(a) RBS

(b) SIMS. **20**

Unit III

5. Explain the following : **20**

(a) Double beam IR spectrometer with a ray diagram

(b) Optic and acoustic modes in solids.

6. Write the experimental study of Raman effect. Discuss classical of Raman effect and also its applications. **10,10**

Unit IV

7. Discuss Mossbauer spectroscopy with explaining the terms, recoil and thermal energies of a nucleus. **20**

8. (a) Write a short note on Microwave Spectroscopy.

(b) Discuss the experimental technique of ESR spectroscopy. **10,10**

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