

**Exam. Code : 209004**

**Subject Code: 4822**

**M.Sc. Physics 4th Semester (Batch 2020-22)**

**PHYSICS OF MATERIALS**

**Paper : PHY-554**

Time Allowed—3 Hours]

[Maximum Marks—100

**Note :-** Attempt **FIVE** questions in all, selecting at least **ONE** question from each Section. The **fifth** question may be attempted from any Section. All questions carry equal marks.

**SECTION—A**

1. Explain the principle and working of Ion Pump. 20
2. What is the difference between Molecular Pump and Cryopump ? Explain working and construction of both pumps. 20

**SECTION—B**

3. Explain the principle and working of Thermal Evaporation process for thin film deposition. What are the parameters that affects the deposition rate ? 20
4. Write a short note on chemical vapor deposition and spray pyrolysis. Also differentiate and discuss their advantages and limitations. 20

### SECTION—C

5. What are the characteristics, applications and processing of polymers ? Explain polymerization and discuss the different types of polymers. 20
6. Write a short note on ceramics, glass transition temperature, thermosets and thermoplasts. Also discuss their application. 20

### SECTION—D

7. Discuss the principle, construction and working of Transmission Electron microscope. 20
8. What is the difference between X-ray diffraction and LEED ? Also discuss the working, principle, construction and application of LEED. 20