M.Sc.DEGREE EXAMINATION,APRIL 2020
II Year IV Semester
Material Science

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Give any two properties of ceramic materials.
2. Classify the composite materials.
3. Give the classification of polymers.
4. What are thermoplastics?
5. Differentiate between piezoelectric and pyroelectric materials.
6. Define polarization.
7. Write a short note on junction lasers.
8. What is epitaxy?
9. Name few application of permanent magnets.
10. What are ferrites?
11. What is forming process?
12. Write a short note on magnetic bubbles.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Briefly discuss on commercial ceramics and its applications.
14. Explain in detail about the mechanical properties of polymers.
15. Write a note on ferroelectric materials and discuss their characteristics.
16. Explain the temperature and frequency efforts on dielectric materials.
17. Based on the properties distinguish hard and soft magnetic materials.
18. Write the structure and properties of liquid crystal polymer.
19. Explain the pulling method of growing crystals with diagram.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Describe the production method and mechanical properties of the ceramics.
21. Write a note on (i) rubber and elastomers (ii) cellular plastics.
22. Describe the mechanisms of optical, molecular and interfacial polarizability.
23. Write a note on (i) doping technique (ii) photolithography in electronic materials.
24. Discuss the role of silicon in soft magnets Fe-Si alloys. Illustrate the magnetic domain wall structure in magnetic materials.

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