



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

SIXTH SEMESTER – APRIL 2017

CH 6614- CHEMISTRY OF MATERIALS

Date: 22-04-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART -A

Answer ALL the questions

(10 x 2 =20 marks)

1. Define Bravais Lattice
2. What are the applications of ferroelectric materials?
3. What is the coordination Number of Zn in Zinc blende and Wurtzite structure
4. What is Zone refining?
5. Give two uses of SEM
6. Define point defect
7. State Curie – Weiss law
8. Comment on the magnetic property of $[\text{Cu}(\text{NH}_3)_4]^{2+}$
9. What are Lithium cells?
10. What is Meissner effect?

PART-B

Answer any EIGHT questions

(8 x 5 = 40 marks)

11. Explain the Limiting radius ratio rules? How is it used to determine the geometry of a crystal? Give examples.
12. Discuss the structure of NaCl
13. Explain n and p type semiconductors with a suitable example each.
14. Explain the sol-gel and CVD method of nanomaterial synthesis
15. Write short note on (i) photo luminescence (ii) organic semi-conductors
16. Explain the following (i) piezoelectric (ii) pyroelectric
17. Discuss Bardeen Cooper and Schuffer theory of super conductivity.
18. Enlist the application of superconducting materials.
19. Discuss the working of sodium- sulphur battery.
20. Explain the working principle of DTA. Give its applications.
21. Describe the functions of photo voltaic cell
22. Write a note on inverse spinel structure of ferrites

PART- C

Answer any FOUR questions

(4 x 10=40 marks)

23. What are liquid crystals? Discuss the types and mention its applications.
24. Discuss the Schottky and Frenkel defects in crystals.
25. How is magnetic susceptibility of a substance determined?
26. a) Explain the principle and applications of TGA.
b) Explain the working of lithium battery.
27. Discuss the structure of ZnS determined using X-ray powder method
28. Write briefly on the following
a) Photoluminescence b) Chevrel phase
