

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**B.Sc. DEGREE EXAMINATION – CHEMISTRY**

**SECOND SEMESTER – APRIL 2018**

**17/16UCH2MC02– CHEMICAL BONDING AND MAIN GROUP ELEMENTS**

Date: 26-04-2018

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

**PART-A**

Answer **ALL** Questions: **(10x2=20 marks)**

1. What is electro negativity?
2. Define the term enthalpy of solution.
3. Obtain the number of atoms or ions that contributed to BCC and FCC.
4. Define the term Bravais lattice.
5. What are London forces?
6. What are crystalline hydrates? Give an example.
7. Mention the biological importance of potassium.
8. What are superoxides? Give an example.
9. What are 'p' block elements?
10. What is inorganic benzene? Give its structure.

**PART-B**

Answer any **EIGHT** Questions: **(8x5=40 marks)**

11. What are ionic compounds? Explain the various factors affecting the formation of ionic compounds.
12. What is lattice energy? Explain the various factors affecting lattice energy.
13. Draw and explain the structure of CsCl.
14. Write a note on Miller indices.
15. What are clathrates? Give their important properties and uses.
16. Draw and explain the structure of ice.

17. Explain the anomalous behavior of Be.
18. Explain the preparation, important properties and uses of  $\text{NaHCO}_3$ .
19. Explain the chemistry involved in the borax bead test.
20. Write a brief note on the allotropy of carbon.
21. Explain the structure of diborane.
22. Give the differences between polar and non-polar compounds.

**PART-C**

Answer any **FOUR** Questions: **(4x10=40 marks)**

- 23.a) Draw and explain Born – Haber cycle. **(6)**
  - b) Write the Born-Landé equation and explain the various terms involved in it. **(4)**
24. a) Define the term polarization. **(2)**
  - b) State and explain Fajan's rules. **(8)**
25. a) What is 'F' centre?
  - b) Explain Schottky and Frenkel defects?
26. Write short notes on the following
  - a) Van der waals forces
  - b) Ion dipole-dipole interactions
27. a) Explain the characteristics of oxides of s-block elements.
  - b) Write a note on crown ethers.
28. a) What are Zeolites? Explain their usefulness.
  - b) How is hydrazine prepared? How does it react with (i) ozone and (ii) Silver nitrate?

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