



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

SECOND SEMESTER – APRIL 2017

16UCH2MC02- CHEMICAL BONDING AND MAIN GROUP ELEMENTS

Date: 25-04-2017
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART-A

Answer **ALL** Questions

(10x2=20 marks)

1. Define the term ionization energy. Give its units.
2. What is lattice energy?
3. Define the term radius ratio.
4. What is 'F' centre?
5. What are London forces?
6. Give an example for intramolecular and intermolecular hydrogen bonding.
7. What are 's' block elements?
8. Mention the biological importance of sodium.
9. NO_2 readily dimerizes while NO does not-Why?
10. What is inorganic benzene? Give its structure.

PART-B

Answer any **EIGHT** Questions

(8x5=40 marks)

11. a. Define the term electro negativity.
b. Explain any three factors influencing the formation of ionic compounds.
12. State and explain Fajan's rules.
13. Draw and explain the structure of NaCl .
14. Write a note on Miller indices.
15. Explain the influence of hydrogen bonding on the physical properties of molecules.
16. Draw and explain the structure of ice.
17. Explain the anomalous behavior of Li .
18. Explain the method of extraction of beryllium from its ore.
19. Explain the chemistry involved in the borax bead test.
20. Give the preparation, properties and any two uses of sodium nitroprusside.
21. What are interstitial carbides? Explain them with examples.
22. How is hydrazine prepared? How does it react with (i) ozone and (ii) silver nitrate.

PART-C

Answer any **FOUR** Questions

(4x10=40 marks)

23. a) Draw and explain Born – Haber cycle. (6)
b) Explain the various factors affecting lattice energy. (4)
24. a) Write the Born-Lande equation. Explain the various terms involved in it. (3)
b) Explain the effects of polarization on the physical properties of ionic molecules. (7)
25. a) What are crystal defects? (2)
b) Explain Schottky and Frenkel defects. (8)
26. What are clathrates? Explain the preparation, properties and uses of them.
27. Write a note on crown ethers.
28. Explain the structure of three dimensional silicates.
