



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2014

CH 3507/CH 3503 - MAIN GROUP ELEMENTS & SOLID STATE CHEMISTRY

Date : 03/11/2014

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

PART-A

Answer **ALL** Questions:

(10x2=20 marks)

1. What are 's' block elements?
2. Superoxides of alkali metals are paramagnetic. Why?
3. Why do aluminium trihalides exist as dimers while boron trihalides exist only as monomers?
4. What are interstitial carbides?
5. What is carborundum? Mention its use.
6. NO_2 readily dimerizes while NO does not-Why?
7. Why does fluorine have lower electron affinity than chlorine?
8. What is euchlorine?
9. What is 'F' center?
10. What are Miller indices?

PART-B

Answer any **EIGHT** Questions:

(8x5=40 marks)

11. Explain the characteristics of oxides of s-block elements.
12. Explain the biological importance of Na and K.
13. Explain the chemistry involved in the borax bead test.
14. What are zeolites? Explain their uses.
15. Discuss the preparation, properties and structure of phosphorus pentoxide.
16. How is hydrazine prepared? Explain its reaction with (i) ozone and (ii) silver nitrate.
17. Discuss the preparation of ozone by using different ozonizers.
18. What are interhalogen compounds? How are they classified?
19. Discuss the basic nature of iodine.
20. Derive Bragg's equation.
21. Define unit cell. Draw the unit cells of simple cubic, body centered and face centered cubic lattices.
22. Discuss the principle of X-ray diffraction analysis.

PART-C

Answer any **FOUR** Questions:

(4x10=40 marks)

23. What is diagonal relationship? Discuss the diagonal relationship between lithium and magnesium.
24. a) Explain the structure of diborane.
b) Discuss the structure of ortho silicates.
25. Discuss the chemistry of peroxodisulphuric acid.
26. Discuss the preparation, properties, structure and uses of Caro's acid.
27. What are pseudohalogens? Discuss the structure of ICl , ClF_3 and IF_5 .
28. Write notes on Schottky and Frenkel defects.

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