



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

**B.Sc. DEGREE EXAMINATION - CHEMISTRY**

**THIRD SEMESTER – NOVEMBER 2015**

**CH 3507/3503/4501 - MAIN GROUP ELEMENTS & SOLID STATE CHEMISTRY**

Date : 06/11/2015

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

**PART-A**

Answer **ALL** Questions:

(10x2=20 marks)

1. Why is potassium more reactive than calcium?
2. Superoxides of alkali metals are paramagnetic - Why?
3. What is inert pair effect?
4. Why is aluminium considered as a good reducing agent?
5. Write the various resonance structures of  $\text{SO}_3$ .
6. What is laughing gas? Why is it called so?
7. What is the difference between iodo and iodimetry?
8. Name the two oxy acids of chlorine having +5 and +7 oxidation states.
9. What is 'F' center?
10. Write the Bragg's equation. Explain the various terms involved in it.

**PART-B**

Answer any **EIGHT** Questions:

(8x5=40 marks)

11. Explain the characteristics of oxides of s-block elements.
12. Write a note on crown ethers.
13. Give any one method of preparation, properties and uses of sodium tetra borate.
14. Explain the various allotropic forms of carbon.
15. What is carborundum? Give its preparation and uses.
16. Write a note on phosphate fertilizers.
17. How is hydrazine prepared? How does it react with (i) ozone and (ii) silver nitrate.
18. What are oxides? Give its different types with one example for each.
19. Discuss the anomalous behaviour of fluorine.
20. Write a note on Miller indices.
21. Explain the structure of Zinc blende.
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. Explain the structure of diborane.
25. Discuss the chemistry of sulphides of phosphorus.
26. Discuss the preparation, properties and structure of Marshall's acid.
27. What are pseudohalogens? Explain their chemistry with suitable examples.
28. Write a note on Schottky and Frenkel defects.

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