



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

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

**THIRD SEMESTER – NOVEMBER 2016**

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

Date: 08-11-2016

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. What is inert pair effect?
4. What are interstitial carbides?
5. NO<sub>2</sub> readily dimerizes while NO does not-Why?
6. What is laughing gas? Why is it called so?
7. Fluorine has lower electron affinity than chlorine-Why?
8. What are interhalogen compounds? Give an example.
9. What is 'F' center?
10. Give any two differences between crystalline and amorphous solids.

**PART-B**

Answer any **EIGHT** Questions

(8x5=40 marks)

11. Explain the method of extraction of beryllium from its ore.
12. Write a note on crown ethers.
13. Explain the chemistry involved in the borax bead test.
14. Explain the structure and bonding in diborane.
15. Explain the various allotropic forms of carbon.
16. How is sodium bismuthate prepared? Explain its important properties and uses.
17. How is hydrazine prepared? How does it react with (i) ozone and (ii) silver nitrate.
18. Discuss the preparation of ozone by using different ozonizers.
19. Discuss the abnormal behaviour of fluorine.
20. Derive Bragg's equation.
21. Write a note on 'Frenkel defects'.
22. Explain the structure of rutile.

**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 three dimensional silicates.
25. Discuss the preparation, properties, structure and uses of Marshal's acid.
26. Discuss the preparation, properties, structure and uses of hydroxylamine.
27. Explain the method of estimation of available chlorine in bleaching powder.
28. a) Discuss the principle of X-ray diffraction analysis  
b) Write a note on Bravais lattices.

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