LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2019**

CH 3507– MAIN GROUP ELEMENTS & SOLID STATE CHEMISTRY

Date: 24-04-2019 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

PART-A

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

1. What is inert pair effect?
2. What are‘s’ block elements?
3. What are interstitial carbides?
4. What are zeolites? Mention its important uses.
5. NO_2 readily dimerizes while NO does not-Why?
6. What is Caro’s acid? What is its use?
7. Name the two oxyacids of chlorine having +5 and +7 oxidation states.
8. Fluorine has lower electron affinity than chlorine-Why?
9. Give any two differences between crystalline and amorphous solids.
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. What is diagonal relationship? Discuss the diagonal relationship between lithium and magnesium.
13. Explain the chemistry involved in the borax bead test.
14. Write a brief note on the allotropy of carbon.
15. Explain the structure of diborane.
16. Give the preparation, properties and any two uses of sodium bismuthate.
17. What is Marshall’s acid? Give its preparation and properties.
18. Write a note on phosphate fertilizers.
19. Explain the principle and the procedure involved in the estimation of available chlorine in bleaching powder.
20. Write a note on ‘Frenkel’ defects.

21. Explain the structure of wurtzite.

22. Discuss the principle of X-ray diffraction analysis.

PART-C

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

23. a) Explain the extraction of beryllium from its ore. **(5)**

b) Write a note on crown ethers. **(5)**

24. Explain the structure of three dimensional silicates.

25. a) Discuss the preparation of ozone by using different ozonizers. **(5)**

b)Discuss the chemistry of sulphides of phosphorus. **(5)**

26. Discuss the preparation, properties, structure and uses of hydroxylamine.

27. a) What are pseudo halogens? Give two examples.

b) Discuss the structure of ICl and ClF_3. **(5+5)**

28. a) Define unit cell. Draw the unit cells of simple cubic and body centered cubic lattices.

b) Write a note on Miller Indices. **(5+5)**

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