

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2015

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

Date : 10/09/2015

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

PART – A

Answer ALL questions:

(10 x 2 = 20)

1. Explain bonding and antibonding orbitals.
2. Draw the structures of 111 & 110 planes in simple cube.
3. What are the coordination number of sodium & chloride in NaCl?
4. How is cyanogen prepared? Mention its uses.
5. Draw the structure of BrF₃.
6. What is catenation?
7. What is bond order? Explain with an example.
8. PCl₅ is stable while NCl₅ is unstable. Why?
9. How is bleaching power prepared?
10. What is peracid of sulphur? Mention any one use.

PART – B

Answer any EIGHT questions:

(8 x 5 = 40)

11. How is beryllium extracted from its ore?
12. Discuss the anomalous behaviour of Lithium.
13. What are carbides? How are they classified? Mention their uses.
14. How is hydrazine prepared? How does it react with (i) ozone (ii) silver nitrate.
15. How are hyponitrous acid & pernitric acid prepared? Write their structure.
16. What is diagonal relationship? Explain with an example.
17. Write briefly on pseudo halogens.
18. Explain the various types of symmetry of elements associated with crystals. Explain with example for a simple cubic system.
19. Compare the properties of phosphine with ammonia.
20. Write briefly of basic properties of iodine.
21. How is borazole prepared. Discuss the structure of borazole.
22. Define insulator and semi conductors. Give an account of oxyacids of phosphorous.

PART – C

Answer any FOUR questions:

(4 x 10 = 40)

23. How does band theory explain (a) conductors (b) semi conductors (c) insulators.
24. Give an account of hydrides and their classification.
25. Make a comparative study of the properties of alkali metals.
26. Write down molecular orbital diagram of Nitrogen and oxygen & Explain briefly.
27. Give an account of preparation & uses of interhalogen compounds.
28. a) How are silicates classified? Give examples.
b) Explain the structure of diborane.

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