

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



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

**THIRD SEMESTER – NOVEMBER 2019**

**CH 3507 – MAIN GROUP ELEMENTS & SOLID STATE CHEMISTRY**

Date: 31-10-2019

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

**Part-A**

*Answer ALL questions.*

**(10 × 2= 20)**

1. Mention any two super oxides of alkali metals.
2. Give two examples of organometallic compounds of Be.
3. What is borax bead test?
4. Define the term 'Carbon Allotropy'.
5. Mention the uses of phosphites.
6. List the oxyacids of sulphur.
7. What are pseudohalogens?
8. Name any two oxoacids of halogens.
9. Mention the significance of Bragg's equation.
10. Define unit cell.

**Part-B**

*Answer any EIGHT questions.*

**(8 × 5= 40)**

11. Explain the biological importance of Na and K.
12. Give the methods of preparation, properties and uses of hydrazine.
13. Explain the structure of diborane.
14. Mention the technological uses of ceramics.
15. Explain limiting radius ratio. How is it used to determine the geometry of the crystal?
16. Discuss the principle of X-ray diffraction.
17. Explain the following statement. "Borazine is called inorganic benzene".
18. How are the following prepared? (a) Chlorine dioxide (b) Borax.
19. What is superphosphate of lime? Give its preparation.
20. Describe the properties of thionyl compounds.
21. Describe the properties and structures of any two Pseudohalogens.
22. How is available chlorine in bleaching powder estimated?

**Part-C**

*Answer any FOUR questions.*

**(4 × 10= 40)**

23. What are silicates? Discuss the classification with an example each.
24. How is beryllium extracted from beryl?
25. Name the important defects in crystals. Discuss the stoichiometric defects in crystals.
26. Discuss the structures of wurtzite and rutile.
27. What are interhalogen compounds? Discuss the structures of IF<sub>5</sub>, ICl and BrF<sub>3</sub>.
28. Discuss the methods of preparation and properties of sulfonyl compounds.

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