

**20P111**

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Name: .....

Reg. No.....

**FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2020**

(CBCSS-PG)

(Regular/Supplementary/Improvement)

**CC19P CHE1 C02 – ELEMENTARY INORGANIC CHEMISTRY**

(Chemistry)

(2019 Admission onwards)

Time: Three Hours

Maximum: 30 Weightage

**Section A**

Answer any *eight* questions. Each question carries 1 weightage.

1. What is meant by super acids? Give one example.
2. Explain the significance of Drago-Wayland equation.
3. How silicon carbide is prepared from  $\text{SiO}_2$ . What are the applications of silicone carbides?
4. Explain the preparation of Hexachlorocyclo Triphosphazene,  $(\text{NPCl}_2)_3$
5. How borazine prepared?
6. What is meant by Bent rule of hybridization?
7. Explain thermonuclear reactions with examples.
8. Give any two features of liquid drop model in nuclear chemistry.
9. Explain the template assisted synthesis of naon-materials
10. Why zeolites are used as molecular sieves?

**(8 × 1 = 8 Weightage)**

**Section B**

Answer any *eight* questions. Each question carries 2 weightage.

11. Explain Wade's rule for Boron cluster compounds.
12. Discuss the periodic anomalies of the nonmetals and post transition metals.
13. Explain synthesis, structure and uses of sulphur nitrogen compounds.
14. Explain the significance of Ellingham diagram
15. Discuss the structure and uses of carbides and silicides
16. Explain the significance of  $\text{H}_2\text{SO}_4$  as a non-aqueous solvent
17. Discuss radiation docimetry.
18. Explain any four applications of nano-materials for diagnostic and therapeutic applications

**(6 × 2 = 12 Weightage)**

### Section C

Answer any *eight* questions. Each question carries 5 weightage.

19. Explain the concept of Hard and Soft acids and bases.
20. Write a note on Heteropoly and Isopoly acids of Mo and W with applications.
21. Explain theory and working procedure of GM counter and Scintillation counters.
22. Explain the principle and applications of AFM and TEM for the characterization of nano materials.

**(2 × 5 = 10 Weightage)**

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