

Reg. No. :

Name :

Third Semester B.Sc. Degree Examination, February 2024

First Degree Programme under CBCSS

Chemistry

Core Course II

CH 1341 : INORGANIC CHEMISTRY II

(2017 – 2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries 1 mark.

1. Explain positive overlapping?
2. Define Bond Order?
3. What is dipole moment?
4. Explain dipole-dipole interaction?
5. What are zeolites?
6. What are pseudohalogens?
7. Give examples of radioactive isotopes used in medicine?
8. What is packing fraction?

9. Give two importance of nanogold in medicine?
10. What is sonochemistry?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Explain the hybridisation of ethylene?
12. Write down the postulates of MO theory?
13. Explain Born-Lande Equation?
14. Explain intramolecular hydrogen bonding with example?
15. What is borazole?
16. What are the types of glass?
17. What are inorganic polymers give example?
18. Give two uses of noble gas?
19. What is the principle of atom bomb?
20. What is mass defect?
21. Explain top-down approach for nanoparticles synthesis?
22. Explain sol-gel synthesis?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. Explain VBT and its limitations?
24. Draw MO diagram of N_2 and B_2 ?

25. Explain Born-Haber cycle?
26. What are the types of secondary forces?
27. What are oxy acids Give some examples?
28. Explain the modes of decay in radioactivity?
29. Explain C-14 dating?
30. Write a note on catalytic property of nanomaterials?
31. Discuss any two methods for the synthesis of nanomaterials?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks.

32. (a) Explain hybridisation and what are the types of hybridisation? (7)
- (b) Discuss about sp^3d and sp^3d^2 hybridisation with example? (8)
33. Discuss about the structure of boron nitride, borazole and boron Hydride?
34. (a) Explain nuclear fission and fusion? (6)
- (b) Discuss about shell model and liquid drop model? (9)
35. (a) Discuss about co-precipitation, combustion and ball milling techniques for the preparation of nanomaterials? (8)
- (b) Give some applications for optical and magnetic property of nanomaterials? (7)

(2 × 15 = 30 Marks)