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VI Semester B.Sc. Degree Examination, September - 2021

CHEMISTRY

Inorganic Chemistry

Paper : VII

(CBCS Scheme 2020-2021 Onwards)

Time : 3 Hours

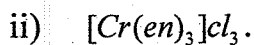
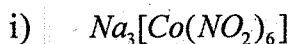
Maximum Marks : 70

**Instructions to Candidates:**

1. The question paper has two parts. Answer both the parts.
2. Write diagrams and equations wherever necessary.

**PART - A**Answer any **EIGHT** of the following questions. Each question carries **two** marks. (8×2=16)

1. Write the IUPAC names of the following



2. What is bidentate ligand? Give an example.

3. Explain Ionisation isomerism with an example.

4. Write the chemical formula and use of Wilkinson's Catalyst.

5. Write a note on safety glass.

6. Mention the raw materials used in the manufacture of Portland cement.

7. Mention any two characteristics of a good fuel.

8. What are bipropellants? Give an example.

9. What is the role of (i)  $Ca^{2+}$  and (ii)  $Na^+$  in biological systems.

10. Mention any two applications of conducting polymers.

11. What are Fullerenes? How does  $C_{60}$  react with bromine?

12. What are nanomaterials? Give any one application of it.

**[P.T.O.]**



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## PART - B

Answer any NINE of the following questions. Each question carries six marks.

(9×6=54)

13. a) Write the postulates of Werner's theory of coordination compounds.  
b) The solution of  $[Ti(H_2O)_6]^{3+}$  appears purple. Give reasons. (4+2)
14. a) Based on VBT, discuss the geometry and magnetic property of  $[CoF_6]^{3-}$ .  
b) Give the synthesis and structure of Zeise's salt. (4+2)
15. a) Discuss the splitting of d - orbitals in an octahedral field.  
b) Write the optical isomers of  $[CoCl_2(en)_2]^+$ . (4+2)
16. a) Explain the following :  
i)  $Na_2[Ca(EDTA)]$  in the treatment of heavy metal poisoning.  
ii) Cis - Platin in Cancer therapy.  
b) Illustrate eighteen electron rule taking the example of  $Mn_2(CO)_{10}$ . (4+2)
17. a) What are Refractories? How are they classified? Give an example for each class.  
b) Explain Monsanto acetic acid process. (4+2)
18. a) Describe manufacture of soda glass.  
b) How is Tungsten Carbide prepared? Give the chemical equation. (4+2)
19. a) Give the role of the following constituents in a paint :  
i) Pigment.  
ii) Binder  
iii) Drier  
iv) Anti skinning agent  
b) What is the significance of various grades of cement? (4+2)
20. a) How is the calorific value of a fuel is determined?  
b) Mention the raw materials used in the manufacture of ceramics. (4+2)
21. a) What are explosives? Discuss their classification.  
b) Mention any two advantages of gaseous fuels. (4+2)
22. a) Discuss the structure and biological functions of Haemoglobin.  
b) What are trace elements? Give an example. (4+2)
23. a) How is polyacetylene converted to a conducting polymer by doping?  
b) How is  $YBa_2Cu_3O_x$  prepared? Give the chemical equation. (4+2)
24. a) Explain briefly Type - I and Type - II super conductors.  
b) How is  $C_{60}$  isolated? (4+2)
25. a) Explain the synthesis of nano materials by  
i) Inert gas condensation.  
ii) Electro deposition.  
b) Mention two commercial uses of  $C_{60}$ . (4+2)