



SG – 271

VI Semester B.Sc. Examination, September/October 2021

(CBCS) (F+R) (2016-17 and Onwards)

CHEMISTRY

Paper – VII : Inorganic Chemistry

Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) The question paper has **two** Parts. Answer **both** the Parts.
2) Write Chemical equations and diagrams **wherever** necessary.

PART – A

I. Answer **any eight** of the following questions. Each question carries **two** marks.

(8×2=16)

- 1) Give the IUPAC name of
 - i) $\text{Na}_2 [\text{MnCl}_4]$
 - ii) $[\text{Ni} (\text{NH}_3)_6] \text{Cl}_2$
- 2) How is Ferrocene Synthesised ? Give equation.
- 3) What is Spectrochemical Series ?
- 4) What are metal carbonyls ? Give an example.
- 5) Define the Hardness of an abrasive and on what scale it is expressed ?
- 6) Write a note on Ceramic insulators.
- 7) What is the role of gypsum in the setting of cement ?
- 8) How is TNT prepared ? Give equation.
- 9) What is the role of cobalamine in living systems ?
- 10) Write any two Commercial uses of C_{60} .
- 11) Give any two applications of nano-materials.
- 12) Write any two general applications of high temperature super conductors.

P.T.O.



PART - B

II. Answer **any nine** of the following questions. **Each** question carries **six** marks.

(9×6=54)

- 13) a) Explain Crystal field splitting in Octahedral complexes.
b) Write the important postulates of Werner's theory. (4+2)
- 14) a) Based on Valence bond theory, explain the geometry and magnetic property of $[\text{CoF}_6]^{3-}$.
b) State 18 electron rule. (4+2)
- 15) a) Discuss the applications of following organometallic compounds.
i) Cis- platin in cancer therapy.
ii) Role of Wilkinson's catalyst.
b) What are bidentate ligands ? Give an example. (4+2)
- 16) a) What are high spin and low spin complexes ? Give one example for each.
b) Explain Ionisation isomerism with an example. (4+2)
- 17) a) Explain optical isomerism in octahedral complexes with an example.
b) Define crystal field splitting energy. (4+2)
- 18) a) Mention the composition and one application each of
i) Borosilicate glass ii) Optical glass.
b) Write a note on tempered safety glass. (4+2)
- 19) a) Describe the manufacture of carborandum.
b) Mention the raw materials used in the production of Ceramic wares. (4+2)



- 20) a) What are the constituents of paints ? Mention their role with an example.
- b) Write any two characteristics of a good fuel. (4+2)
- 21) a) How do you determine the calorific value of a fuel using bomb Calorimeter ?
- b) What is meant by refractoriness of a refractory ? (4+2)
- 22) a) What are explosives ? How are they classified ? Give an example for each.
- b) Give the composition of LPG. (4+2)
- 23) a) Discuss the structure of Myoglobin and its biological function.
- b) Give the biological role of Sodium in living systems. (4+2)
- 24) a) What are super conductors ? Give the preparation of $Y_1Ba_2Cu_3O_x$.
- b) Explain bromination reaction of fullerenes. (4+2)
- 25) a) Describe Sol-Gel method for the synthesis of nano-materials.
- b) Give the characteristics of a good propellant. (4+2)
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