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6205 – A

Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2014
First Degree Programme under CBCSS
CHEMISTRY
Core Course – VI
CH 1542 – Inorganic Chemistry – III

Time : 3 Hours

Weight : 30

SECTION – A

Weightage 1. Answer in a word/sentence. Answer **all** questions.

- I. 1) The compound which is known as “inorganic benzene” is _____
- 2) The membrane bound enzyme, _____, catalyses the pumping process of Sodium-potassium pump.
- 3) Name one aromatic Sandwich molecule.
- 4) $[\text{Ni}(\text{CN})_4]^{2-}$ is a typical _____ spin square planar complex.
- II. 5) What is the oxidation number of Cr in $\text{K}_2\text{Cr}_2\text{O}_7$?
- 6) Give the formulae of the complex tetra ammine Sulphatocobalt (III) chloride.
- 7) The metal present in Chlorophyll is
- 8) 4f block elements are called
- III. 9) Give the name of a boron based polymer.
- 10) The approximate molecular mass of haemoglobin is
- 11) The glass with very low coefficient of expansion is known as
- 12) Silicon carbide is commercially known as

P.T.O.



IV. 13) Carbides which give methane on hydrolysis are called

- 14) Name a protein containing calcium.
- 15) Give the outer electronic configuration of Cr.
- 16) Give an example for an ambidentate ligand.

SECTION – B

Weightage – 1. Short answer type. Answer **any 8** questions.

- 17) Separation of Zr from Hf is a difficult task. Why ?
- 18) How is borazole prepared ? Give its structure.
- 19) Arrange the ligands in spectrochemical series in the order of increasing field strength

Br^- , OH^- , NH_3 , H_2O , CN^- , CO

- 20) Why the transition elements are called so ?
- 21) How is Silicon carbide prepared ? Mention its uses.
- 22) Iron forms a pentacarbonyl, while nickel forms a tetracarbonyl. Why ?
- 23) What is inorganic graphite ? Why is it called so ?
- 24) Octahedral field splitting energy is always higher than tetrahedral field splitting energy. Give reasons.
- 25) How do inorganic polymers differ from organic polymers ?
- 26) Give any two similarities of pseudo halides and halides.
- 27) Calculate the EAN of nickel tetra carbonyl.
- 28) Do you consider Zn, Cd and Hg as transition elements ? Justify your answer.



SECTION – C

Weightage – 2. Short essay type. Answer **any 5** questions.

- 29) Explain briefly how haemoglobin and myoglobin vary in their role in oxygen transportation process.
- 30) What are the causes and consequences of lanthanide contraction ?
- 31) How KMnO_4 is prepared from pyrolusite ?
- 32) Write down an account of dinitrogen complexes.
- 33) Explain the factors affecting the stability of complexes.
- 34) Give an account of the separation of lanthanide elements using ion-exchange resin.
- 35) Give a brief account of the preparation and structure of Silicones. What is the reason for their water repellency ?
- 36) Explain Sodium-potassium pump in biological systems.

SECTION – D

Weightage – 4. Long essay type. Answer **any 2** questions.

- 37) Give an account of the structure and bonding in ferrocene. How is ferrocene prepared ?
 - 38) Discuss the structure of diborane on the basis of molecular orbital theory.
 - 39) a) Give an account of classification of Silicates.
b) Comment on the oxidation states of lanthanides.
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