QP CODE: 23800330

23800330

Reg No : .....

Name : .....

INTEGRATED PG DEGREE EXAMINATION, DECEMBER 2023

Third Semester

INTEGRATED MSC BASIC SCIENCE-CHEMISTRY

CORE - ICH3CR01 - INORGANIC CHEMISTRY-1

2020 ADMISSION ONWARDS

D84A0FAA

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Write the IUPAC names of a) [Co(en)2Br2]Cl b) K2[Fe(CN)5NO] c) K[Ag(CN)2]
2. What do you mean by the term 'thermodynamic stability'?
3. What is the geometry of [CoF6]3- according to VBT? Explain.
4. Arrange the following ligand in the form of spectrochemical series CN-, Br-, NO2-, NH3, I-
5. What do you mean by crystal field splitting? Draw the crystal field splitting in octahedral complex?
6. How will you estimate Zinc and copper by quantitative method?
7. Define hard and soft acid with example.
8. Write down the auto ionization of liq. H2SO4 and NH3.
9. What are interhalogen compounds? Give eample.
10. Xenon forms compounds with fluorine and oxygen only. Explain.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write briefly on Werner's theory of complexes.
12. Explain the structure of [Ni(CO)4] and [Ni(CN)4]4- on the basis of valence bond theory.
13. Write a note on substitution reactions of square planer complexes.
14. Explain Jahn-Teller theorem. What are the its consequences?

15. Discuss with two examples each of the following aspects confirming the solvent properties of liquid ammonia: acid – base reactions and precipitation reaction. Give any two advantages and disadvantages of liq. Ammonia as a solvent

16. Compare the reactivity of interhalogens compounds with halogens.

17. What are group reagent used in intergroup separation of cations and how they get precipitated?

18. What are interfering acid radicals? How will you eliminate arsenite and arsenate?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain valence bond theory. Explain with examples the various geometries shown by complexes with coordination number 4 and 6.

20. What are the applications of coordination chemistry in qualitative and quantitative analysis of metal ion?

21. Differentiate between hard and soft acids. Write a note on HSAB principle and its application.

22. Write a note on interhalogen compounds.

(2×5=10 weightage)