Reg. No…….. Name…….. **14U506**

B. Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2019

SEMESTER – **5: CHEMISTRY (CORE COURSE)**

COURSE: **U5CRCHE5 – CHEMISTRY OF D AND F BLOCK ELEMENTS**

(For Supplementary 2014 Admissions)

Time: Three Hours Max. Marks: 60

SECTION A

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

1. Give the electronic configuration of Cu^{2+}ion.
2. What are cytochromes?
3. Find the correct value of n in $Cr(CO)_n$.
4. EAN value for $Os(CO)_5$ is …….
5. Vitamin B12 is a complex of ---------- metal
6. Geometry of $[Zn(NH_3)_4]^{2+}$ is ----------
7. Which is more stable Cu^+ or Cu^{2+}.
8. Dimethylglyoxime is used to identify ---------- metal ion (1 × 8 = 8)

SECTION B

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

9. Explain linkage isomerism with an example.
10. What are the fundamental postulates of Werner's coordination theory?
11. What is 18 electron rule?
12. Write the role of Zn in biochemistry.
13. What is the nature of bonding in metal carbonyls?
14. What is Wilkinson's catalyst?
15. What is CFSE? Find CFSE of d^2 configuration in tetrahedral field.
16. What is Na/K pump? (2 × 6 = 12)

SECTION C

*Answer **any four** questions. Each question carries **5** marks*

17. Why do transition metals show variable valency?
18. Explain the structure of $Re_2Cl_8^{2-}$.
19. Write a note on transuranic elements.
20. Explain Jahn Teller distortion taking octahedral complex as an example.
21. Write a note on lanthanide contraction. What are its consequences?
22. Write a note on Ziegler- Natta catalyst. (5 × 4 = 20)

SECTION D

*Answer **any two** questions. Each question carries **10** marks*

23. a) Explain trans effect? Give its applications.
    b) Explain substitution reactions of square planar complexes.
24. Discuss the splitting of d orbitals in octahedral, tetrahedral and square planar fields according to crystal field theory.
25. Write a note on the general characteristics of transition elements.
26. Explain the structure of ferrocene based on VBT and MOT. (10 × 2 = 20)

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