UG (CBCS) EVEN SEMESTER EXAMINATION, 2023

EDUCATION (B.Sc. B.Ed.)

CHEMISTRY (PASS)

4th Semester

Course No. : BSCP - 402

(General Chemistry)

Full Marks : 50

Pass Marks : 20

Time : 2 hours

The figures in the margin indicate full marks for the questions

1. (a) Discuss the Werner's theory of coordination compounds with suitable example. 4

   (b) Write note on : $1^1/_2+1^1/_2=3$

   (i) Linkage isomerism

   (ii) ionization isomerism

   (c) What are the possible geometrics of 4-coordinated complexes. 3

Or

2. (a) What kind of isomers exist for octahedral complexes with molecular formula $[MA_4 B_2]$ and $[MA_3B_3]$. 2+2=4

   (b) Provide IUPAC name for the following complexes

   (i) $[Pt Cl_2 (NH_3)_4]^{2+}$

(ii) $[Ni(CO)_3(Py)]$

(iii) $[Co\,Cl_2(en)_2]^+$ 3x1=3

(c) Which of the following complexes are chiral?

(i) $[Cr(edta)]^-$

(ii) $[Ru(en)_3]^{2+}$

(iii) $[Pt(dien)Cl]^+$

3. (a) Discuss the structure and function of Myoglobin. 5

(b) What are Siderophores? Give two examples and provide their structures. 5

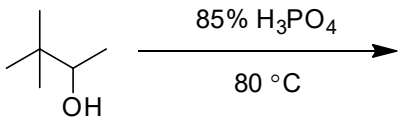
Or

4. (a) Discuss the biological role of calcium. 3

(b) Write a note on the toxic effect of cyanide. 3

(c) Provide the structure of following macrocylic rings.
(i) Porphyrin (ii) Corrin 2+2=4

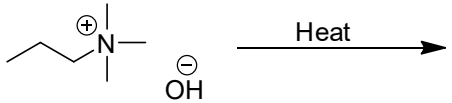
5. (a) Predict the major product. Discuss the mechanism for the same 5



(b) Discuss the laboratory procedure for synthesizing alcohols from alkenes that avoids rearrangement. 5

Or

6. (a) Write down the product and provide mechanism for the following reaction : 5



(b) How does RMgX react with carbonyl compounds? Provide mechanism. 5

7. (a) Discuss about the Kohlarauch's law of independent migration of cons. 5

(b) Calculate the heat of formation of ammonia, given the heats of combustion of ammonia and hydrogen as -90.6 and -68.3 k cal/mol respectively. 5

Or

8. (a) Write short notes on reversible and irreversible calls. 4x2=8

(b) What is heat of neutralization. 2

9. (a) What do you mean by molecularity, order and rate of reaction. 3x2=6

(b) Write a note on Clausius-Mosotti equation. 4

Or

10. (a) How dielectric constant will change with the change of temperature. 4

(b) Discuss about the chemistry of zero order reaction in details. 6

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