647510 **BFS4CheC401x** **Seat No :_____**

B.Sc.(FS) Semester - 4 (*CBCS*) Examination
March/April-2023 [NEW COURSE]
Chemistry(Core)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1(A) Answer the following questions. **(04)**

Define: π-acid ligands and flexidentate ligands with two examples of each.

Q.1(B) Answer the following question. (Any Two) **(10)**

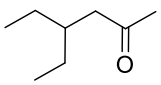
1. Discuss the structure and bonding of Zeise salt in detail.

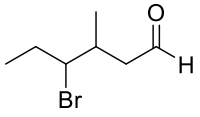
2. Give the name of any five structural isomerisms in co-ordination compound with one example of each.

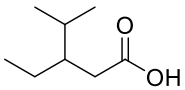
3. Structure and roll of hemoglobin in biological system.

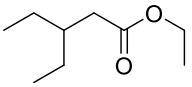
Q.2(A) Answer the following questions. **(04)**

Give the IUPAC name of each of following molecules.

(i) 

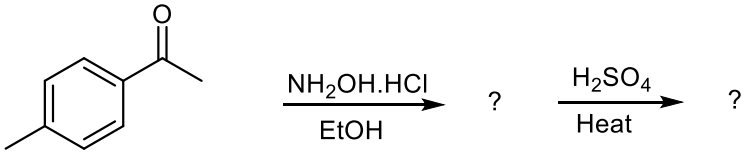
(ii) 

(iii) 

(iv) 

Q.2(B) Answer the following question. (Any Two) **(10)**

1. Complete the following reaction with proper mechanism and write the name of reaction.

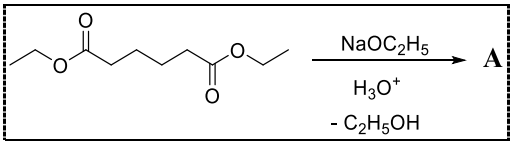


2. Give the following synthesis from ethyl acetoacetate;

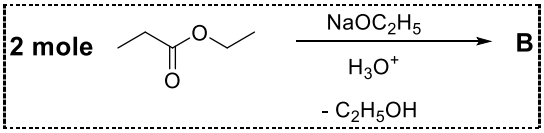
I. butyric acid **II.** crotonic acid

3. Identify and complete the following reactions:

I.



II.



Q.3(A) Match the following Pairs **(04)**

Physical Properties	Unit
1. Viscosity	**A.** C·m
2. Surface Tension	**B.** $Kg \cdot m^{-1}s^{-1}$
3. Dipole Moment	**C.** degree
4. Refractive Index	**D.** Unitless
	E. $N \cdot m^{-1}$

Q.3(B) Answer the following question. (Any Two) (10)

1. Determine the equation for the relation between temperature and volume for adiabatic process.
2. Give the applications of dipole moment.
3. Explain in detail: Joule Thomson Effect.

Q.4(A) Answer the following questions. (04)

What is toxicity? Discuss the toxic effect of Mercury.

Q.4(B) Answer the following question. (Any Two) (10)

1. What is ligand? Give the classification of ligands on the basis of denticity.
2. Describe the structure of ferrocene.
3. Describe Wolff Kishner reduction with mechanism.

Q.5(A) Answer the following questions. (04)

Explain: Extensive and Intensive properties with examples.

Q.5(B) Answer the following question. (Any Two) (10)

1. Effect of substitution on acidity of carboxylic acid with examples.
2. How one can find out refractive index of a liquid by using Abbe's refractometer?
3. 5 mole of an ideal gas at 27℃ is allowed to expand isothermal reversibly from a volume 2 liters to 10 liters then calculate work done by the gas in calories and Joules. where, R=1.987 cal/K.mol

****