DAH-003-1014004 Seat No. _____

B. Sc. (Sem. IV) Examination

April - 2022

Chemistry : C-401

(Old Course)

Faculty Code : 003
Subject Code : 1014004

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) This question paper contains five questions.
(2) All questions carry 14 marks each and figures to the right indicate full marks.
(3) Write sub questions (a), (b), (c) and (d) of particular question together.

1 (a) Answer the following questions : **4**

(1) Write the formula of Zeise's salt.

(2) Which metal is associated in the structure of chlorophyll ?

(3) Which heterocyclic ring is present in Porphyrins ?

(4) Define organometallic compound.

(b) Answer any **one** : **2**

(1) Give two preparation of organolithium compounds.

(2) Explain myoglobin.

(c) Answer any **one** : **3**

(1) Explain classification of organometallic compounds based on M-C bond.

(2) Explain importance of chlorophyll.

(d) Answer any **one** : **5**

(1) Explain the structure of trimethyl aluminium (dimer).

(2) Explain the structure and role of Hemoglobin in biological system.

2 (a) Answer the following questions : **4**

(1) Complete the reaction $XeF_2 + H_2 \rightarrow$

(2) Name **one** noble gas elements make a number of compounds ?

(3) Give the structure of Methylene group.

(4) Give the reaction of Ehthylacetoacetate with HCN.

(b) Answer any **one** : **2**

(1) Give preparation of KrF_2.

(2) Explain Keto-Enol tantomerism with example.

(c) Answer any **one** : **3**

(1) Explain Hybridization and structure of XeF_4.

(2) Discuss principle of claisen condensation.

(d) Answer any **one** : **5**

(1) Explain uses of noble gases.

(2) Give synthesis of valeric acid and levulenic acid from EAA.

3 (a) Answer the following questions : **4**

(1) What is carbonyl group ?

(2) Give IUPAC name of Butyraldehyde.

(3) Give structure of Acetic anhydride.

(4) Write structure of Acetamide.

(b) Answer any **one** : **2**

(1) Give synthesis of Aldehyde from acid chloride.

(2) Explain acidity of carboxylic acid.

(c) Answer any **one** : **3**

(1) Explain Wolff Kishner and Clemmensen reduction of Ketone.

(2) Explain HVZ reaction.

(d) Answer any **one** : **5**

(1) Explain nucleophilic addition elimination reaction of ammonia derivatives with aldehydes.

(2) What is Trans esterification ? Explain in detail with mechanism.

4 (a) Answer the following questions : **4**

(1) Write the structural formula of witting reagent.

(2) In aldol condensation which product is obtain ?

(3) What is the CGS unit for dipole moment ?

(4) Define surface tension.

(b) Answer any **one** : **2**

(1) Explain principle of witting reaction.

(2) Write short note on Parachor.

(c) Answer any **one** : **3**

(1) Give mechanism of Perkin Reaction.

(2) What is Refractive index ? Explain Molar refractivity of solutions and solids.

(d) Answer any **one** : **5**

(1) Explain Beckmann rearrangement with mechanism.

(2) Explain Ostwald's viscometer.

5 (a) Answer the following questions : **4**

(1) Name the process in which pressure remains constant.

(2) Define specific heat with equation.

(3) Define Enthalpy.

(4) What is Close system ?

(b) Answer any **one** : **2**

(1) Write note on type of processes.

(2) Write two statement of first law of thermodynamics.

(c) Answer any **one** : **3**

(1) Write note on advantages and limitation of thermodynamics.

(2) Dervii relationship between pressure and volume for adiabatic process of ideal gas.

(d) Answer any **one** : **5**

(1) Derive $C_P - C_V = R$.

(2) State Kirchoff's law and derived it.