



**MAZ-003-1014004**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. IV) (CBCS) Examination**

**March / April - 2018**

**Chemistry : C-401**

*(New Course)*

**Faculty Code : 003**

**Subject Code : 1014004**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) This question paper contains five questions, all are compulsory.  
(2) Figures to the right indicate full marks.

- 1 (a) Answer the following : 4
- (1) Write the formula of Zeise's salt.
  - (2) Ferrocene have \_\_\_\_\_ type structure.
  - (3) How many Heme unites are arranged in Hemoglobin?
  - (4) How Lead poisoning is cured?
- (b) Answer in brief : (any **one**) 2
- (1) What is organo-metalic compound? Give one example.
  - (2) Discuss the role of Magnesium in Chlorophyll.
- (c) Answer in detail : (any **one**) 3
- (1) Give uses of Grignard reagents in preparation of primary, secondary and tertiary alcohol.
  - (2) Discuss toxic effect of Arsenic.
- (d) Answer any **one** : 5
- (1) Explain preparation and application of organo-lithium compound.
  - (2) Describe the structure and role of Chlorophyll.

- 2 (a) Answer the following : 4
- (1) Give general electronic configuration of Noble gases.
  - (2) Complete the reaction  $\text{XeF}_2 + \text{H}_2 \rightarrow$
  - (3) Give the structure of Methylene group.
  - (4) Crotonic acid is a keto acid, True or False ?
- (b) Answer in brief : (any **one**) 2
- (1) Which two noble gas element makes number of compounds ?
  - (2) Define: Tautomer.
- (c) Answer in detail : (any **one**) 3
- (1) Explain Clathrates of noble gases.
  - (2) Discuss Principle of Claisen condensation.
- (d) Answer any **one** : 5
- (1) Explain uses of noble gases.
  - (2) Give the synthesis of Dicarboxylic acid and  $\alpha$ -B Unsaturated acid from Ethyl aceto acetate.
- 3 (a) Answer the following : 4
- (1) What is Carbonyl group?
  - (2) Give IUPAC name of Butyraldehyde.
  - (3) How many Derivatives of Carboxylic acid?
  - (4) Give IUPAC name of Formic acid.
- (b) Answer in brief : (any **one**) 2
- (1) Give oxidation reaction of 1° and 2° alcohol.
  - (2) Explain acidity of Carboxylic acid.
- (c) Answer in detail : (any **one**) 3
- (1) Explain Wolfkishner and Clemmensen reduction of aldehyde.
  - (2) Discuss any three methods of preparation of mono Carboxylic acid.

- (d) Answer any **one** : 5
- (1) Explain addition reaction of aldehyde and ketone with alcohol.
  - (2) Discuss chemical properties of mono Carboxylic acid.
- 4 (a) Answer the following : 4
- (1) In aldol condensation which product is obtain?
  - (2) Give reagents of Hoffman bromamide degradation reaction.
  - (3) Define Surface tension.
  - (4) State Kopp's law.
- (b) Answer in brief : (any **one**) 2
- (1) Explain principle of Witting reaction.
  - (2) Explain molar volume.
- (c) Answer in detail : (any **one**) 3
- (1) Give mechanism of Perkin Reaction
  - (2) Prove that  $H_2O$  has bent structure.
- (d) Answer any **one** : 5
- (1) Explain Aldol condensation reaction and rearrangement with principle mechanism and application.
  - (2) Explain Oswald's Viscometer.
- 5 (a) Answer the following : 4
- (1) What is close system?
  - (2) Define Enthalpy.
  - (3) State Zeroth law of thermodynamics.
  - (4) Provide the relation between  $C_p$  and  $C_v$ .

- (b) Answer in brief : (any **one**) **2**
- (1) Derive the relationship  $\Delta H = \Delta U + \Delta n_{(g)}RT$ .
  - (2) Give two statement of First law of thermodynamics.
- (c) Answer in detail : (any **one**) **3**
- (1) Write note on application and limitation of thermodynamics.
  - (2) Write short note on Internal energy.
- (d) Answer any **one** : **5**
- (1) Explain different types of thermodynamic processes.
  - (2) State Kirchhoff's law and derived it.
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