

B.Sc. Semester - 4 (CBCS) Examination**March/April- 2018****CHEMISRTY****(CORE)****Time: 2:30 Hours****Marks: 70****Instructions:**

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

- Que-1 (A) Answer the following questions. (04)
- (1) What is general chemical formula of Grignard reagent ?
 - (2) Complete the chemical reaction $K_2[PtCl_4] + C_2H_4 \rightarrow \text{_____} + \text{_____}$.
 - (3) Which Conformational isomer of Ferrocene is more stable ?
 - (4) What is the role of Hemoglobin in biological system ?
- Que-1 (B) Answer any One question. (02)
- (1) What is organometallic compound ? Give two examples.
 - (2) Explain toxicity of Arsenic in short.
- Que-1 (C) Answer any One question. (03)
- (1) What is the importance of chlorophyll ?
 - (2) Discuss Physical Properties of organolithium compounds.
- Que-1 (D) Answer any One question. (05)
- (1) Write short note on Trimethyl Aluminium.
 - (2) Give brief account of the structure of hemoglobin.
- Que-2 (A) Answer the following questions. (04)
- (1) What is the hybridization of Xenon trioxide ?
 - (2) Give IUPAC name of Adipic acid.
 - (3) Give Structure of malonic ester.
 - (4) Which noble gas is used for treatment of cancer ?
- Que-2 (B) Answer any One question. (02)
- (1) Give preparation of Ethyl aceto acetate.
 - (2) Give two application of Xenon and Krypton.
- Que-2 (C) Answer any One question. (03)
- (1) Give uses of Noble gases.
 - (2) Write synthesis of Butyric acid and Valeric acid from Ethyl aceto acetate.
- Que-2 (D) Answer any One question. (05)
- (1) Explain reduction, hydrolysis and bromination reaction of Ethyl aceto acetate.
 - (2) Discuss compounds of noble gases.
- Que-3 (A) Answer the following questions. (04)
- (1) Give IUPAC name of acetone.
 - (2) Give the Product of chemical reaction between acetaldehyde and ammonia.
 - (3) Arrange acidic strength in increasing order ICH_2COOH , FCH_2COOH , $Cl.CH_2COOH$, $Br.CH_2COOH$.
 - (4) Write chemical formula of thionyl chloride.
- Que-3 (B) Answer any One question. (02)
- (1) Explain acidic hydrolysis of Nitrile.
 - (2) Write Physical properties of Aldehyde and Ketone.

- Que-3 (C) Answer any One question. (03)
- (1) Give preparation of aldehyde from acetyl chloride and nitriles.
 - (2) Discuss decarboxylation of carboxylic acid.
- Que-3 (D) Answer any One question. (05)
- (1) Explain reduction reaction of Aldehydes and Ketones.
 - (2) Explain acidity of carboxylic acids.
- Que-4 (A) Answer the following questions. (04)
- (1) Which catalysts are used in the Beekmann rearrangement?
 - (2) Density is _____ properties.
 - (3) SI Unit of surface tension is _____.
 - (4) Define Molar Volume.
- Que-4 (B) Answer any One question. (02)
- (1) Describe factors affecting on viscosity.
 - (2) Give reaction mechanism of Benzil-Benzilic acid rearrangement.
- Que-4 (C) Answer any One question. (03)
- (1) Explain with mechanism : Perkin reaction.
 - (2) What is Parachor ? Prove that $\frac{P_1}{P_2} = \frac{V_{M1}}{V_{M2}}$ (Where P=parachor and V_M : Molar Volume)
- Que-4 (D) Answer any One question. (05)
- (1) Write short note an optical activity.
 - (2) Explain Witting reaction.
- Que-5 (A) Answer the following questions. (04)
- (1) Define Path function.
 - (2) Define calorie.
 - (3) Define cyclic process.
 - (4) Define extensive property.
- Que-5 (B) Answer any One question. (02)
- (1) Explain zeroth law of thermodynamics.
 - (2) Write limitation of thermodynamics.
- Que-5 (C) Answer any One question. (03)
- (1) Write short note on Internal energy.
 - (2) Give difference between reversible and irreversible process.
- Que-5 (D) Answer any One question. (05)
- (1) Define heat capacity and Prove that $C_P - C_V = R$.
 - (2) Write in detail Joule Thomson effect.
