

B.Sc. Semester - 4 (CBCS) Examination
April/May -2022 [NEW COURSE]
Chemistry-C401 (Core)

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

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q. 1 (A) Answer the following question.**(4)**

- (1) Give the classification of organometallic compounds based on nature of M-C bond.

Q.1 (B) Answer the following questions. (Any two)**(10)**

- (1) Discuss importance of Chlorophyll.
- (2) Discuss bonding and structure in dimeric form of trimethyl aluminium.
- (3) Explain (i) Ionization isomerism (ii) Linkage isomerism

Q. 2 (A) Answer the following question.**(4)**

- (1) Give any four preparation method for monocarboxylic acid.

Q. 2 (B) Answer the following questions. (Any two)**(10)**

- (1) Write Nucleophilic addition reaction of carbonyl compounds with HCN, ROH and NaHSO₃.
- (2) Discuss Aldol condensation with reaction mechanism.
- (3) Give only synthesis of valeric acid and crotonic acid from Ethyl acetoacetate.

Q. 3 (A) Answer the following question.**(4)**

- (1) Calculate the work done when one mole of the gas is expanded reversibly and isothermally from 4 atm. to 2 atm. at 25°C. (R = 8.314)

Q. 3 (B) Answer the following questions. (Any two)**(10)**

- (1) Define Surface tension. Explain effect of temperature on surface tension.
- (2) Define Heat capacity. Derive the relationship between Cp and Cv for an ideal gas.
- (3) Discuss application of dipole moment.

Q. 4 (A) Answer the following question.**(4)**

- (1) Write note on toxicity of mercury.

Q. 4 (B) Answer the following questions. (Any two)**(10)**

- (1) Explain geometrical isomerism in coordination number four.
- (2) Explain Beckmann rearrangement with mechanism.
- (3) Discuss Ostwald's viscometer.

Q. 5 (A) Answer the following question.**(4)**

- (1) Give Tollens and Fehling test for carbonyl compounds.

Q. 5 (B) Answer the following questions. (Any two)**(10)**

- (1) Discuss application of coordination compounds.
- (2) Discuss acidic and basic hydrolysis of ester.
- (3) Prove that Wrev > Wirrev.
