

SARDAR PATEL UNIVERSITY
B.Sc. Industrial Chemistry
(Semester – 5TH) EXAMINATION
13th November 2019, Wednesday
Course No. : US05CICH02
(Unit Process in Organic Manufacture)

Total Marks: 70

Time: 10.00am to 1.00 pm

Q.1 Answer the given multiple choice questions. [10]

1. Amines can be produced by reduction of
 - a) Nitro group
 - b) Nitroso group
 - c) Azo Group
 - d) All of them
2. Liquid phase nitration is of less importance because
 - a) Low yield
 - b) Low conversion
 - c) Unwanted side reaction
 - d) All of these
3. Which of the following is a unit process?
 - a) Distillation
 - b) Drying
 - c) Alkylation
 - d) All of these
4. Conversion of alcohol to aldehyde is an example of
 - a) Oxidation
 - b) Reduction
 - c) Esterification
 - d) Alkylation
5. Sulphamates are used as
 - a) Herbicides
 - b) Sweetening agents
 - c) Blood anticoagulants
 - d) All of these
6. Usually oxidation with dichromate is carried out in presence of
 - a) Acetic acid
 - b) Hydrochloric acid
 - c) Sulphuric acid
 - d) All of these
7. _____ is used as a catalyst in preparation of monochloroacetic acid
 - a) Phosphorous trichloride
 - b) $AlCl_3$
 - c) $FeCl_3$
 - d) None of these
8. Halogenation may involve reactions of
 - a) Addition
 - b) Substitution of hydrogen
 - c) Replacement of functional group
 - d) All of above
9. $KCN + H_2O \rightarrow HCN + KOH$ is a _____ reaction.
 - a) Hydrolysis
 - b) Hydrogenation
 - c) Esterification
 - d) None of these
10. _____ is not a hydrolysis agent
 - a) Water
 - b) Water and acid
 - c) Water and alkali
 - d) Benzene

Q.2 Attempt any Ten. [20]

- i. Enlist the function of H_2SO_4 in mixed acid.
- ii. Define Nitration and write mechanism of Nitration.
- iii. Write the advantages of continuous process over batch process for Nitration.
- iv. Discuss role of chromic acid as an oxidizing agents.
- v. List different sulfonating and sulfating agents.
- vi. Define: Sulfonation and Sulfation.
- vii. Enlist the catalyst used for Hydrogenation reaction.

- viii. Discuss about different iodination reactions.
- ix. Write reactions for chlorination by substitution reactions.
- x. Define the term "Transesterification".
- xi. Enlist various Alkylating agents.
- xii. Write mechanism of Fridel –Craft acylation.
- Q.3 a)** With the help of diagram explain manufacturing of Nitrobenzene by continuous process. [05]
- b)** List and explain different methods of reduction. [05]
- OR**
- Q.3 a)** Discuss manufacturing of P-Nitro Acetanilide. [05]
- b)** Write a note on: Oxy-Nitration. [05]
- Q.4 a)** Discuss about commercial manufacturing of Acetic acid. [05]
- b)** Write about role of permanganates as oxidizing agents. [05]
- OR**
- Q.4 a)** Discuss about different types of oxidative reactions. [10]
- Q.5 a)** Write about commercial manufacturing of Chlorobenzene. [10]
- OR**
- Q.5 a)** Discuss different methods of chlorination. [05]
- b)** Write about Fluorination and Fluorinating agents. [05]
- Q.6 a)** Explain mechanism of hydrolysis [05]
- b)** Discuss esterification of carboxylic acid derivatives. [05]
- OR**
- Q.6 a)** With the help of diagram explain manufacturing of Vinyl Acetate. [10]

— X —
 (2)