B.Sc. Part–II Semester—III Examination

INDUSTRIAL CHEMISTRY (R/V)

(Unit Processes and Process Equipments)

Time : Three Hours] [Maximum Marks : 80

Note :– (1) Question No. **1** is compulsory and carries **8** marks.

(2) Attempt one question from each unit.

(3) Use of calculator is allowed.

1. (a) Fill in the blanks :

(i) _____ waste originate from hospitals and clinics.

(ii) Olefins and alcohols are the examples of ___ __ agents.

(iii) Vapour phase oxidation consists of the use of molecular ____ as oxidising agent.

(iv) _____ is the solid waste which remains in soil for long time. 2

(b) Choose the correct alternatives :

(1) In nitration, ratio of nitric acid to sulphuric acid in mixed acid is :

(a) 1 : 2 (b) 1 : 3

(c) 1 : 4 (d) 1 : 5

(2) Potassium dichromate is ___ ___ agent.

(a) Reducing

(b) Oxidising

(c) Sulphonating

(d) Alkylating

(3) Which of the following is a vigorous Hydrogenating Catalyst ?

(a) Platinum (b) Palladium

(c) Copper (d) Nickel

(4) In Galvanization of Iron _____ is used.

(a) Copper (b) Zinc

(c) Nickel (d) Chromium 2

(c) Answer in **one** sentence :

(i) Define-halogenation. 1

(ii) What is the use of barometer ? 1

(iii) What is the aim of hydrogenation of vegetable oil ? 1

(iv) What is meant by animation by reduction ? 1

UNIT–I

2. (a) Discuss manufacturing process of m-nitroaniline. 4

(b) Explain Batch nitration process. 4

(c) Explain the mechanism of liquid phase alkylation. 4

OR

3. (p) Discuss the nitration of Acetanilide to p-nitroacetanilide. 4

(q) Explain iron and acid method of animation by reduction. 4

(r) Discuss any two alkylating agents. 4

UNIT–II

4. (a) Discuss the factors that affect sulphonation. 4

(b) Explain with flow diagram, the manufacturing process of Chlorobenzene. 4

(c) Discuss the role of water as hydrolyzing agent and its advantages. 4

OR

5. (p) Describe in brief Sulphonation of Naphthalene. 4

(q) What is chlorination ? Comment on any three chlorinating agents. 4

(r) Discuss acid and alkali hydrolysis. 4

UNIT–III

6. (a) Discuss the manufacturing of Ethyl acetate. 6

(b) Explain hydrogenation of vegetable oil with diagram. 6

OR

7. (p) Discuss the manufacturing of cellulose acetate with diagram. 6

(q) Discuss the liquid and vapour phase oxidation mechanism. 6

UNIT–IV

8. (a) Discuss the construction and working of pressure spring thermometer with diagram. 6

(b) Explain any two direct liquid level measurement method. 6

OR

9. (p) Discuss with diagram, construction and working of bimetallic thermometer. 6

(q) Explain principle, construction and working of Ultrasonic level gauge. 6

UNIT–V

10. (a) Discuss galvanic corrosion. 4

(b) Explain plastic coating method for prevention of corrosion. 4

(c) Write in short :

Corrosion inhibitor. 4

OR

11. (p) Explain the manufacturing process of oil paints and any one use. 4

(q) Describe chemical and mechanical passivity. 4

(r) Write in brief :

(i) Galvanization of iron

(ii) Two factors that affect corrosion. 4

UNIT–VI

12. (a) Give an account on biomedical waste. 4

(b) Discuss sanitary land fill methods of disposal of solid waste. 4

(c) Discuss the disposal method of radioactive waste. 4

OR

13. (p) Explain pyrolysis as solid waste disposal method. 4

(q) Explain with any two example, how industrial waste can be recycle and reuse. 4

(r) Discuss non-radioactive hazardous waste. Give any two examples. 4