

AP-446

B.Sc. (Part-II) Semester-III Examination
3S : INDUSTRIAL CHEMISTRY (Regular/Vocational)
(Unit Processes and Process Equipments)

Time—Three Hours]

[Maximum Marks—80

- N.B. :** (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) Ethyl acetate is prepared from acetic acid and Ethanol by _____. $\frac{1}{2}$
(ii) Chlorosulfonic acid is _____ agent. $\frac{1}{2}$
(iii) Radiation Pyrometer is used to measure _____. $\frac{1}{2}$
(iv) In galvanisation of iron, _____ metal is used. $\frac{1}{2}$

(b) Choose correct alternatives :

- (i) Nitrating mixture consists of HNO_3 and _____.
(a) H_2SO_4
(b) HCl
(c) NaOH
(d) H_3PO_4 $\frac{1}{2}$

UWO-45311

1

(Contd.)

- (ii) Preparation of Chlorobenzene from Benzene is a process of _____. $\frac{1}{2}$
- Nitration
 - Oxidation
 - Halogenation
 - Sulphonation $\frac{1}{2}$
- (iii) Reducing agent is that :
- Which takes electron
 - Which takes proton
 - Which donates electron
 - Which donates proton $\frac{1}{2}$
- (iv) Which is the thermal process of solid waste treatment ?
- Sanitary landfill
 - Pyrolysis
 - Composting
 - None of these $\frac{1}{2}$
- (c) Answer in one sentence :
- What is Cathodic protection ? 1
 - Give any two types of solid wastes. 1
 - Name any two oxidising agents. 1
 - Define Hydrogenation process. 1

- Explain oxide film theory of Passivity. 4
- Discuss four factors that affect corrosion. 4
- Explain corrosion inhibitor. 4

UNIT-VI

- Discuss thermal process as solid waste disposal method. 4
- Give an account of Biomedical waste. 4
- Discuss radioactive hazardous waste. 4

OR

- Discuss composting as solid waste disposal method. 4
- Explain recycling as solid waste disposal method. 4
- What are the sources of radioactive waste ? Discuss its disposal method. 4

UNIT-I

2. (a) Explain the manufacturing process of m-dinitrobenzene with flow diagram. 4
(b) How are amines prepared by Cathodic reduction ? 4
(c) Write in brief on alkylating agents. 4

OR

3. (p) Describe continuous nitration with suitable diagram. 4
(q) Discuss manufacturing of Ethylbenzene. 4
(r) Give any two factors which affect amination. 4

UNIT-II

4. (a) Explain manufacturing of monochloroacetic acid. 4
(b) Comment on sulphonating agent. 4
(c) Explain in short nuclear and side chain aromatic halogenations. 4

OR

5. (p) Give an account on manufacture of Chloral. 4
(q) Discuss any four factors affecting sulphonation. 4
(r) What is hydrolysis ? Explain role of water in hydrolysis. 4

UNIT-III

6. (a) Explain the manufacturing of methanol from carbon monoxide and hydrogen with flow diagram. 6

- (b) Explain the manufacturing process of cellulose acetate with flow diagram. 6

OR

7. (p) Explain hydrogenation of vegetable oil. 6
(q) Explain manufacturing process of Benzoic acid with suitable diagram. 6

UNIT-IV

8. (a) Explain construction and working of Bimetallic thermometer with diagram and advantage. 6
(b) Give any two methods of direct level measurements. 6

OR

9. (p) Draw and explain Pirani gauge. 6
(q) Discuss the construction and working of ultrasonic level gauge. 6

UNIT-V

10. (a) Explain:
(i) Pitting corrosion
(ii) Intergranular corrosion. 4
(b) Explain any two methods used for preventing corrosion. 4
(c) Discuss manufacturing of varnishes. 4

OR