AT–328

B.Sc. (Part—II) Semester—III Examination

3S-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) Remaining all ***six*** questions carry **12** marks each.

(3) Give chemical equations and draw diagrams wherever necessary.

(4) Use of calculator is allowed.

1. (a) Fill in the blanks :

(i) _____ phase oxidation is used for partial oxidation of organic compounds. ½

(ii) Application of paint on metal surface prevents _____. ½

(iii) _____ gas is used in manufacturing of chlorobenzene. ½

(iv) Manometer is the device used for _____ measurements. ½

(b) Choose the correct alternative :

(i) Incineration and pyrolysis are types of which solid waste treatments and disposal :

(a) Composting

(b) Thermal process

(c) Recyclic and Reuse

(d) Sanitary land filling

(ii) Reduction is :

(a) Removal of oxygen

(b) Gain of electron

(c) Addition of hydrogen

(d) All of the above

(iii) Beckamp method of amination by reduction involves use of :

(a) Iron and Acid

(b) Copper and Acid

(c) Iron and Base

(d) Copper and Base

(iv) In hydrogenation of vegetable oil ___ _ is used as a catalyst.

(a) Iron

(b) Nickel

(c) Copper

(d) Aluminium 2

(c) Answer in one sentence :

(i) What is the difference between paints and varnishes ? 1

(ii) Define corrosion. 1

(iii) What is nitrating mixture ? 1

(iv) Name any two oxidising agents. 1

UNIT—I

2. (a) Explain the manufacturing of Nitrobenzene from benzene. 4

(b) Discuss any two alkylating agents. 4

(c) Discuss the factors affecting animation by reduction. 4

OR

3. (p) Describe the nitration of chlorobenzene. 4

(q) How amines are prepared by catholic reduction ? 4

(r) Discuss various alkylating agents. 4

UNIT—II

4. (a) Discuss any four factors affecting sulphonation. 4

(b) Explain manufacturing process of monochloro acetic acid. 4

(c) Discuss any two hydrolyzing agents. 4

OR

5. (p) Give a brief account on sulphonation of benzene. 4

(q) Describe manufacturing of chloral with flow diagram. 4

(r) What is hydrolysis ? Explain $B_{AC}2$ mechanism of hydrolysis. 4

UNIT—III

6. (a) Explain liquid and vapour phase oxidation. 6

(b) Explain hydrogenation of vegetable oil. 6

OR

7. (p) Discuss the manufacturing of acetic acid with flow diagram. 6

(q) Explain the manufacturing of vinyl acetate with flow diagram. 6

UNIT—IV

8. (a) Give the construction and working of bimetallic thermometer with diagram. 6

(b) Describe direct level measurements method. 6

OR

9. (p) Discuss the diaphram pressure guage with diagram. 6

(q) Explain the principle, construction and working of manometer. 6

UNIT—V

10. (a) Discuss mechanism of corrosion by hydrogen evolution. 4

(b) Explain how Nickel plating prevents corrosion of metals. 4

(c) Describe various factors affecting corrosion. 4

OR

11. (p) Explain :

(i) Pitting corrosion

(ii) Dry corrosion. 4

(q) What is underwater corrosion ? Explain. 4

(r) Give the applications of an oil paint and varnishes. 4

UNIT—VI

12. (a) Explain composting for solid waste disposal. 4

(b) Give an account of : Recycle and Reuse. 4

(c) Discuss non-radioactive hazardous waste. 4

OR

13. (p) Give the complete classification of solid waste with example. 4

(q) How radioactive waste from nuclear power plant affects environment ? 4

(r) Write a brief account on incineration as solid waste disposal method and its advantage and disadvantage. 4