AS–1404

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

INDUSTRIAL CHEMISTRY (R/V)

(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) _____ waste originate from nuclear power plants.
   (ii) In hydrogenation of vegetable oil _____ is used as a catalyst.
   (iii) Inversion of sugar is an example of _____ reaction.
   (iv) Lithium Aluminium Hydride $LiAlH_4$ is a _____ agent. 2

   (b) Choose correct alternative :
   (i) Glass thermometer utilizes volumetric expansion of :
   (a) Mercury (b) Copper
   (c) Oil (d) Water
   (ii) Oxidation means :
   (a) Addition of oxygen (b) Removal of hydrogen
   (c) Loss of electron (d) All of these
   (iii) Pirani gauge is a device used for measurement of _____.
   (a) Temperature (b) Low pressure
   (c) Level (d) Liquid flow
   (iv) Solid waste which remains in soil for long time is called as :
   (a) Non-biodegrable waste (b) Biodegradable waste
   (c) Both (d) None of these 2

   (c) Answer in **one** sentence :
   (i) Define Nitration. 1
   (ii) Name any two alkylating agents. 1
   (iii) What is meant by amination by reduction ? 1
   (iv) Give the use of manometer. 1

UNIT—I

2. (a) Describe the manufacturing process of Nitrobenzene with flow sheet diagram. 6

(b) Discuss factors affecting amination reaction. 4

(c) Define Alkylation. Name any two alkylating agents. 2

OR

3. (p) Describe continuous nitration with suitable diagram. 4

(q) Discuss manufacturing of aniline. 4

(r) Explain Cathodic method for amination by reduction. 4

UNIT—II

4. (a) Describe Sulphonation of Benzene. 4

(b) Explain nuclear and aromatic side chain halogenation. 4

(c) Discuss acid and alkali hydrolysis. 4

OR

5. (p) Explain manufacturing process of Chlorobenzene with flow diagram. 4

(q) Comment on Sulphonating agents. 4

(r) What is halogenation ? Explain any three Chlorinating agents. 4

UNIT—III

6. (a) Explain manufacturing process of acetaldehyde with flow diagram. 6

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

OR

7. (p) Explain manufacturing process of acetic acid with flow diagram. 6

(q) Discuss liquid and vapour phase oxidation. 6

UNIT—IV

8. (a) Explain principle, construction and working of radiation pyrometer. 6

(b) Describe construction and working of pressure spring thermometer with diagram. 6

OR

9. (p) Explain construction and working of glass thermometer and its advantages. 6

(q) Draw and explain diaphragm pressure gauge. 6

UNIT—V

10. (a) Give the mechanism of corrosion by oxygen absorption. 4

(b) Explain underwater corrosion. 4

(c) Discuss manufacturing of oil paints. 4

OR

11. (p) Explain :

(i) Galvanic corrosion

(ii) Open air corrosion. 4

(q) Explain the method of electroplating and plastic coating. 4

(r) Discuss galvanisation of iron and its advantages. 4

UNIT—VI

12. (a) Discuss sanitary landfill method for solid waste disposal. 4

(b) Explain recycle and reuse of solid waste. 4

(c) Give the disposal method for non-radioactive waste. 4

OR

13. (p) Discuss radioactive hazardous wastes. 4

(q) What is solid waste ? Give complete classification with example. 4

(r) Give a short account of Biomedical Waste. 4