AR – 538

Third Semester B. Sc. (Part - II) Examination

3S : INDUSTRIAL CHEMISTRY

(Regular / Vocational)

(Unit Process and Process Equipments)

P. Pages : 7

Time : Three Hours] [Max. 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 diagram wherever necessary.

(4) Use of calculator is allowed.

1. (A) Fill in the blanks :—

(1) Radiation Pyrometer is the device used for _____ measurements.

(2) The _____ matter is transformed into stable humas during compositing.

(3) Inversion of sugar is an example of _____ reaction.

(4) _____ waste originate from hospitals and clinics.

(B) Choose the correct alternatives.

(i) Pirani guage is a device used for the measurement of _____ .

(a) temperature

(b) low pressure

(c) level

(d) liquid flow

(ii) Glass thermometer utilizes volumetric expansion of _____ .

(a) Mercury

(b) Copper

(c) Oil

(d) Water

(iii) _____ are the examples of Radioactive waste.

(a) Cobalt radiation waste

(b) Atomic power plant waste

(c) Both (a) & (b)

(d) None of these

(iv) Incineration and Pyrolysis are the types of which solid waste treatment and disposal ?

(a) Compositing

(b) Thermal process

(c) Sanitary land filling

(d) Recyeling and Reuse

(C) Answer in one sentences.

(i) What is the use of barometer ? 1

(ii) Name any two alkylating agents. 1

(iii) What is the mixed acid ? 1

(iv) Define Hydrolysis. 1

UNIT I

2. (a) Explain the manufacture of Aniline. 4

(b) Give an account of factors affecting amination. 4

(c) Discuss the process of preparation of Nitrobenzene from benzene. 4

OR

3. (p) Explain manufacturing process of Ethyl benzene with flow sheet diagram. 4

(q) Explain Bechamp reduction method of amination by reduction. 4

(r) Write in brief on Batch nitration. 4

UNIT II

4. (a) What is Sulphonation ? Explain in brief sulphenation of Benzene. 4

(b) Explain manufacture of chlorobenzene. 4

(c) Discuss any two hydrolyzing agents. 4

OR

5. (p) Discuss the factors that affect sulphonation. 4

(q) What is Halogenation ? 4

(r) Discuss any two halogenating agents. Explain the role of water as hydrolyzing agent. 4

UNIT III

6. (a) Discuss any two oxidising agents. 4

(b) Explain the manufacturing of Methanol. 4

(c) Discuss Esterification of organic acid using unsaturated compounds. 4

OR

7. (p) Explain the manufacturing of Benzoic acid. 4

(q) Explain any two types of hydrogenation catalysts. 4

(r) Discuss the manufacturing of vinyl acetate. 4

UNIT IV

8. (a) Discuss construction and working of radiation Pyrometer with diagram. 6

(b) Explain principle, construction and working of Ultrasonic level guage. 6

OR

9. (p) Discuss construction and working of Resistance Thermometer and its advantages. 6

(q) Explain construction and working of Pirani guage. 6

UNIT V

10. (a) What is corrosion ? Discuss open air corrosion. 4

(b) Write in short.

(a) Galvanization of iron.

(b) Electroplating with one example. 4

(c) Explain the manufacturing of varnishes and its any one application. 4

OR

11. (p) Discuss various factors that affects corrosion. 4

(q) Explain chemical and mechanical passivity. 4

(r) Write in short.

(a) Corrosion inhibitor.

(b) Anodic inhibitor. 4

UNIT VI

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

(b) Explain compositing as solid waste disposal methods. 4

(c) Write in brief with one example–Recycling and Reuse. 4

OR

(p) Discuss chemical method of disposal of Hazardous waste. 4

(q) Explain pyrolysis as solid waste disposal method. 4

(r) Discuss non-radioactive hazardous waste. 4