

B.Sc. (Part—I) Semester—II Examination
2S : INDUSTRIAL CHEMISTRY (R/V)

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 scientific calculator is allowed.

1. (A) Fill in the blanks :

- (i) Screening method of separation of solids from solids depends on the _____ of the particles.
(ii) In filtration, bed of solid deposited on a porous membrane is termed as _____.
(iii) The aim of evaporation is to obtain a _____ liquid.
(iv) The adsorption phenomenon occurs at the _____ of solid material. 2

(B) Choose the correct alternatives :

- (i) The technique of removing one component from a liquid by using a liquid is called as :
(a) Extraction (b) Evaporation
(c) Crystallisation (d) Filtration
(ii) Which of the following is a type of drying equipment ?
(a) Flash (b) Long tube
(c) Centrifugal (d) Tray
(iii) A propeller or a turbine is an equipment used for liquid-liquid or liquid-solid _____.
(a) Extraction (b) Leaching
(c) Mixing (d) Separation
(iv) Distillation of highly heat sensitive material is carried out especially by this type :
(a) Flash (b) Steam
(c) Differential (d) Azeotropic 2

(C) Answer in **one** sentence each :

- (i) What is free moisture content ?
(ii) Define nucleation.
(iii) State Kick's law.
(iv) Define solubility. 4

UNIT—I

2. (A) Give an account of steam distillation. 4
(B) Discuss differential distillation. 4
(C) Explain short tube evaporator. 4

OR

3. (P) Explain forced circulation evaporator. 4
(Q) Discuss Flash distillation. 4
(R) Give an account of falling film evaporator. 4

UNIT II

4. (A) Discuss the criteria for selection of a solvent in liquid-liquid extraction. 4
(B) Give an account of rotating disc column. 4
(C) Describe Kennedy extractor. 4

OR

5. (P) Explain spray column extractor. 4
(Q) Discuss counter current multiple contact (Shank's System) in leaching. 4
(R) Give an account of rotoceel. 4

UNIT—III

6. (A) Discuss the construction and working of vacuum crystalliser. 6
(B) Explain the construction and working of spray dryer. 6

OR

7. (P) Give an account of rotary dryer with respect to its construction and working. 6
(Q) Describe Swenson-Walker crystalliser. 6

UNIT - IV

8. (A) Discuss hammer mill. 4
(B) Explain the principle and process of cake filtration. 4
(C) What is screening ? Give the difference between ideal and actual screen. 4

OR

9. (P) Give an account of Trommel Screen. 4
(Q) What is filtration ? Give the characteristics of filter media. 4
(R) Describe smooth roll crusher. 4

UNIT—V

10. (A) Describe tumbling mixer 6
(B) Give an account of double arm kneader. 6

OR

11. (P) Explain prevention of swirling and vortex formation. 6
(Q) Discuss ribbon blender. 6

UNIT—VI

12. (A) What is adsorption ? Explain its mechanism. 4
(B) Define catalysis. Explain its types with an example. 4
(C) How will you differentiate physical and chemical adsorption ? 4

OR

13. (P) Discuss the characteristics of a catalyst. 4
(Q) Describe the factors affecting adsorption. 4
(R) Explain :
(i) Auto catalysis
(ii) Negative catalysis. 4