Bachelor of Science (B.Sc.) Semester—I (C.B.S.) Examination

INDUSTRIAL CHEMISTRY (ICH–101)

Compulsory Paper—1

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) All **FIVE** questions are compulsory and carry equal marks.

(2) Write equations and draw well labelled diagrams wherever necessary.

1. (A) What is addition polymerization ? Discuss various steps involved in its mechanism. 5

(B) Discuss condensation polymerization with suitable examples. 5

OR

(C) Differentiate between thermoplastic and thermosetting resins. 2½

(D) Explain emulsion polymerization. 2½

(E) Give the synthesis of Polyacrylonitrile. 2½

(F) Write a note on Nylon-66. 2½

2. (A) How will you obtain cellulose from natural resources ? Give the preparation of the following from cellulose :— 5

(i) Nitro cellulose

(ii) Acetate Rayon (Silk) and

(iii) Paper.

(B) Explain why starch is called as renewable sources. Describe preparation of any three important products from it. 5

OR

(C) Explain the hydroforming. 2½

(D) Explain the terms :—

(i) Cracking and

(ii) Reforming. 2½

(E) Write a note on fractionation of crude oil. 2½

(F) What is natural gas ? Give its important constituents. 2½

3. (A) Write a short notes on :—

(i) Short tube evaporator and

(ii) Forced circulation evaporator. 5

(B) What are spray column and packed column ? How are these columns used in the process of absorption ? 5

OR

(C) Write a note on falling film evaporator. 2½

(D) Differentiate between climbing film evaporator and falling film evaporator. 2½

(E) What is gas absorption ? What for is it carried out industrially ? 2½

(F) Explain the working of bubble column for absorption. 2½

4. (A) What are the various plate columns used in distillation ? Describe any two. 5

(B) State and explain constant rate and constant pressure filtration. 5

OR

(C) Explain fractional distillation of crude oil. 2½

(D) What are the different methods of filtration ? 2½

(E) Explain catalytic cracking of crude oil. 2½

(F) Explain briefly azeotropic distillation. 2½

5. Attempt any **TEN** of the following :—

(i) What do you mean by hetero-chain polymers ?

(ii) Give any two examples of natural polymers.

(iii) Define degree of polymerization.

(iv) What is natural gas ?

(v) Give the properties of cellulose.

(vi) Define isomerism.

(vii) What are the selection criteria for solvent in gas absorption ?

(viii) Name the properties of liquid that influence evaporation.

(ix) What are the advantages of packed bubble column in absorption.

(x) Give any two applications of filtration.

(xi) Name any two factors affecting rate of filtration.

(xii) Mention any two advantages of pressure filter. 1×10=10