

Bachelor of Science (B.Sc.) Semester—IV (C.B.S.) Examination
INDUSTRIAL CHEMISTRY (ICH-402)
Paper—II

Time : Three Hours] [Maximum Marks : 50

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

(2) Give neat and well labelled diagram wherever necessary.

1. (A) Explain the typical commercial synthesis process for cellulose acetate. 5
(B) Draw the labelled diagram for making crude ethyl acetate (Batch process). 5

OR

(C) Explain the refining of ethyl acetate in detail. 2½
(D) What is the use of acid chlorides in the process of esterification in the laboratory method ? 2½
(E) Explain the process of esterification of olefins. 2½
(F) What pre-treatment is necessary for the production of cellulose acetate ? 2½
2. (A) How p-aminophenol is prepared commercially ? 5
(B) Give the mechanism of hydrolysis of p-nitroacetanilide. 5

OR

(C) Explain the factors affecting the aminolysis. 2½
(D) Explain the different methods of metal catalytic reduction. 2½
(E) What types of promoters are used for electrolytic reduction ? 2½
(F) Give the preparation of aniline from nitrobenzene. 2½
3. (A) Discuss the principle of bag filters. What are their limitations over air pollution control device ? 5
(B) What do you understand by the term ‘sedimentation’ ? Draw the diagrams of different types of sedimentation tanks. 5

OR

(C) Explain mist eliminator with suitable example. 2½

(D) Write a short note on solid waste management. 2½

(E) Write a short note on wet scrubbers. 2½

(F) Describe Freundlich adsorption isotherm of gas on a solid. 2½

4. (A) Explain the principle involved in liquid-level measurement by ultrasonic level gauge. 5

(B) Define the term viscosity and density. How will you determine viscosity of liquid by Ostwald viscometer ? 5

OR

(C) Write down the principle of float type liquid level gauge. 2½

(D) Explain the working of ultrasonic level gauge. 2½

(E) Explain the working of conductometer. 2½

(F) What are the types of conductometric titrations ? 2½

5. Solve any **TEN** of the following :

(i) Which catalyst is exclusively used for the manufacture of cellulose acetate ?

(ii) Write the chemical equation for producing acetylated cellulose.

(iii) Write any two names of reactants used for the preparation of vinyl acetate.

(iv) Give the various uses of amines.

(v) Name the catalyst used in continuous reduction.

(vi) How will you classify amines ?

(vii) Give an expression of BET isotherm.

(viii) What is the use of adsorption isotherm in decolorising syrup and sugar ?

(ix) Draw the sketch of centrifugal scrubber.

(x) Give any two advantages of conductometric titrations.

(xi) Give the name of instrument used for liquid level measurement.

(xii) What is the SI unit of viscosity ? 1×10=10