

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