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 commercial manufacture of ethyl acetate. 5

(B) What is esterification ? How is cellulose acetate manufactured commercially ? 5

OR

(C) What happens when alcohol reacts with :

(i) Acid anhydrides

(ii) Amides ? 2½

(D) How will you prepare ester from olefin ? 2½

(E) What is the use of acid chloride in the process of esterification in the laboratory method ? 2½

(F) Complete the following reaction :

(i) $CH_2 = \underset{\underset{O}{\|}}{C} + C_2H_5OH \xrightarrow{BF_3} ?$

(ii) $CO + CH_3OH \xrightarrow[\text{or acid}]{BF_3} ?$ 2½

2. (A) How P-amino phenol is prepared commercially ? 5

(B) Give the mechanism of hydrolysis. 5

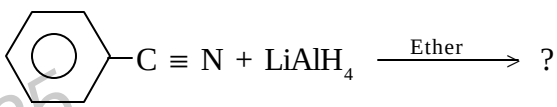
OR

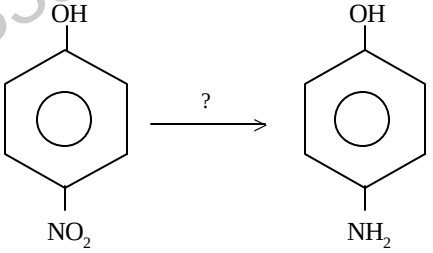
(C) Give the examples of primary, secondary and tertiary amines with their structure and uses. 2½

(D) Explain the amination by aminolysis with a suitable example. 2½

(E) Give the comment on the use of sodium metal in the preparation of amine by reduction amination process. 2½

(F) Complete the following reactions :

(i) 

(ii) 

2½

3. (A) What do you understand by aerobic and anaerobic processes ? Distinguish between them. 5

(B) What is the sedimentation ? Draw the diagram of different types of sedimentation tanks. 5

OR

(C) Describe ventury scrubber for removing fine particles from polluted air. 2½

(D) Explain the electrostatic precipitator. 2½

(E) Describe rectangular horizontal flow sedimentation tank. 2½

(F) What do you understand by the term absorption isotherm ? Give their types. 2½

4. (A) Describe the principle and working of conductometer. 5

(B) What is viscosity ? How will you measure the viscosity of different percentage of liquids ? 5

OR

(C) Give the application of pH meter. 2½

(D) Explain the titration curve of strong acid against strong base conductometrically. 2½

(E) Give the principle of ultrasonic level gauge. 2½

(F) Explain the flow type liquid level gauge. 2½

5. Attempt any **ten** of the following :

(i) Write any two structure of unsaturated ester.

(ii) What happens when ethyl alcohol reacts with acetic acid ?

(iii) Give any two industrial applications of esterification.

(iv) Give the various uses of amines.

(v) Give any two unsaturated derivatives of acid.

(vi) Give any one application of $LiAlH_4$.

(vii) Define filtration.

(viii) What is adsorption ?

(ix) What is solid waste management ?

(x) Give any two advantages of conductometric titrations.

(xi) Define cell constant.

(xii) What is pH ? 1×10=10