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

INDUSTRIAL CHEMISTRY (ICH-402)

Paper—II

Time : Three Hours]   [Maximum Marks : 50

Note :— (1) All *five* questions are compulsory and carry equal marks.

(2) Give neat and well labelled diagrams wherever necessary.
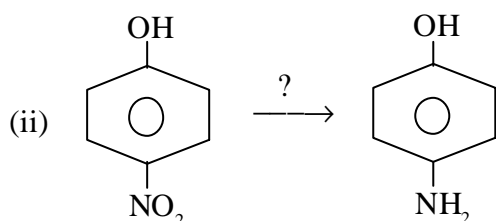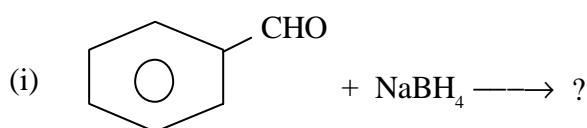
1. (A) What is esterification ? How is ethyl acetate manufactured commercially ?   5

   (B) Explain the manufacturing process of vinyl acetate with flow sheet diagram.   5

<div align="center">

OR

</div>

   (C) How is cellulose acetate manufactured ?   2½

   (D) Write short notes on alcoholysis.   2½

   (E) Explain the esterification reaction of carboxylic acid derivatives.   2½

   (F) Write the chemical reactions of acid chlorides used in the process of esterification.   2½

2. (A) How is aniline manufactured commercially ?   5

   (B) What are aminating agents ? Discuss the different factors that affect the aminolysis.   5

<div align="center">

OR

</div>

   (C) Explain animation by reduction with suitable examples.   2½

   (D) How will you commercially manufacture p-amino phenol ?   2½

   (E) Complete the following reaction :

(i) $C_6H_5CHO + NaBH_4 \longrightarrow$?

(ii)

                                                                                                      2½

   (F) How is m-nitroaniline prepared from aniline ?   2½

3. (A) What is sedimentation ? Draw the diagrams of different types of sedimentation tanks. 5

(B) Define the term "filtration". Describe briefly :

(i) Rapid sand filter and

(ii) Pressure sand filters used in water treatment. 5

OR

(C) What is Mist ? Describe a method for elimination of mist. 2½

(D) What are web scrubbers ? Explain their use in air pollution. 2½

(E) Describe vertical pressure filter used in treatment of water. 2½

(F) Write a note on solid waste management. 2½

4. (A) Describe the construction and working of pH meter. 5

(B) What is density ? How will you measure density of different liquids ? Give the factors affecting the density of liquid. 5

OR

(C) How will you calibrate the flow type liquid level gauge and ultrasonic level gauge ?

2½

(D) Describe the working of conductometer. 2½

(E) Explain the calibration of laboratory glassware. 2½

(F) Give the applications of pH meter. 2½

5. Attempt any *ten* of the following :

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

(ii) Which is general catalyst used for esterification ?

(iii) Give any two unsaturated derivatives of acid.

(iv) What is electrolytic reduction ?

(v) Give any one application of sodium metal.

(vi) Write one common hydrolysing agent.

(vii) Name any two scrubbing solvents used in removal of nitrogen oxide pollutants.

(viii) What is aerobic process ?

(ix) Give any two industrial safety measures.

(x) Define viscosity.

(xi) Define cell constant.

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