2019

Part – II

INDUSTRIAL CHEMISTRY

(Major)

Paper – IV

Full Marks – 100

Time : 4 Hours

The Questions are of equal value for any group / half. The figures in the right-hand margin indicate marks. Candidates are required to give their answers in their own words as far as practicable. Illustrate the answers wherever necessary.

1. Answer any **twenty** questions : 2×20=40

   (a) What is Sampling ?

   (b) Explain the term 'Chemical Shift'.

   (c) What do you mean by TCD ? Where it is used ?

   (d) Write the range of wave length of IR-spectrometer.

   (e) What do you mean by 'tacticity' ?

(f) Write the use of glycerine.

(g) Write the name of various type filled thermometer.

(h) Define the term 'Torr'.

(i) Write the difference between LNG and LPG.

(j) What is detergent ? Give example.

(k) What is thermic fluid ?

(l) Write the use of PVC and PS.

(m) Define the term Chromatography.

(n) What is BTX ?

(o) Define the term 'Flash point' and 'Fire point'.

(p) Define the term. 'Accuracy'.

(q) What do you mean by GLC ?

(r) Write the composition of LNG.

(s) What do you mean by oligomer ?

(t) Define the term polymer. Give example.

(u) What is 'AAS' ? Mention its use ?

(v) What is thermo couple ?

(w) How cumene is prepared from propylene ?

GROUP – A

Answer any **two** questions of the following : 10×2=20

2. Show the schematic of Gas Chromatography. Explain the function of its components. Explain the working principle of flame ionization detector. 2+5+3

3. Write short notes on any **two** of the following : 5×2

   (i) TLC

   (ii) HPLC

   (iii) Ion-Selective Electrode

   (iv) U.V-spectrophotometer

4. (a) Discuss the manufacturing process of acetaldehyde from acetylene.

   (b) What do you mean by 'surfactant' ? Name the different types of surfactant. 6+2+2

GROUP – B

Answer any **two** questions of the following : 10×2=20

5. (a) Describe the manufacturing process of 'Butadiene' with a neat sketch.

   (b) How does impurities of butadiene be removed ? 6+4

6. (a) Explain the working principles of Atomic spectrometry.

   (b) Write a short note about the catalysts used in petrochemical industries. 5+5

7. (a) Describe the manufacturing process of vinylchloride and mention its use.

   (b) Define the term 'Thermister'. 6+2+2

GROUP – C

Answer any **two** questions of the following : 10×2=20

8. (a) Explain the principles of vapour pressure thermometer with a neat sketch.

   (b) Explain the working principle of a Mcleod Gauge. 5+5

9. Show the schematic of gas Chromatography Explain the function of its components. Explain the working principle of flame ionisation detector. 2+5+3

10. (a) Give the block diagram of the FTIR spectrometer. In what respect it is superior to IR Spectrophotometer ? 4+2

    (b) Write the usage of butadiene industrially. What do you mean by oligomer ? 2+2