

2019

Major 3rd Semester Examination

INDUSTRIAL CHEMISTRY

Paper - C 6-T

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

1. Answer *any five* questions : 2×5=10
- (a) What is the basic principle of paper chromatography ? 2
- (b) What information you get from the Retardation factor value ? 2
- (c) What is a chromatogram ? 2
- (d) In thin layer chromatography mention the nature of stationary phase and mobile phase. 2

[Turn Over]

- (e) What are the common adsorbents used in TLC ? 2
- (f) What is a flame ionization detector ? 2
- (g) Write down the principles of HPLC. 2
- (h) Mention major components of a high performance liquid chromatograph. 2

2. Answer *any four* questions from the below : $5 \times 4 = 20$

(a) (i) Write down the principle of ion-exchange chromatography. 3

(ii) Mention few commonly used ion-exchangers. 2

(b) (i) Mention the solvent delivery system and solvent injection system in HPLC. 2

(ii) Mention four applications of ion-exchange chromatography. 3

(c) (i) Write down the functions of solvents used in column chromatography.

Mention few solvents used in column chromatography. 5

- (d) (i) What is the role of detectors in chromatography ? 2
- (ii) What are the factors that affect column efficiency in chromatography ? 3
- (e) With a clear sketch discuss Radial paper chromatography. 5
- (f) Mention different steps in chromatographic separation. 5
3. Answer *any one* question from the below : $10 \times 1 = 10$
- (a) With respect to gas chromatography answer the following :
- (i) Principle 2
- (ii) Mobile phase and stationary phase 2
- (iii) Schematic diagram of a capillary column gas chromatography, with special mention of the major components. 4
- (iv) Solute detection system. 2
- (b) (i) What are the limitations of paper chromatography technique ? 2

[Turn Over]

(ii) Write down the principle of GC-MS combination in analysing complex mixture. Give a schematic diagram of the same. 5

(iii) Mention basic operations involved in TLC.

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