

T.Y.B.SC. SEM – VI (CBCS - 2016 Course) : SUMMER - 2019
SUBJECT : CHEMISTRY : ANALYTICAL CHEMISTRY – II

Day : Monday
Date : 15/04/2019

S-2019-0913

Time : 03.00 P.M. To 06.00 P.M
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

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- Q.1** Attempt **ANY TWO** of the following: [12]
- a) What is solvent extraction? Define distribution ratio and distribution coefficient and derive a relationship between them.
 - b) What is FES? What are the various events that occur when a solution containing anion is atomized through flame?
 - c) Explain the principle and the technique of HPLC.
- Q.2** Attempt **ANY TWO** of the following: [12]
- a) Draw a schematic diagram of gas chromatography and describe its different components.
 - b) Explain the principle and technique of paper chromatography.
 - c) Discuss in brief about ion-exchange chromatography. Explain the classification of ion exchangers.
- Q.3** Attempt **ANY TWO** of the following: [12]
- a) A mixture of A, B and C organic compounds are analyzed by GLC. The peak areas were found to be 20 cm², 15 cm² and 30 cm² respectively. Calculate the percentage composition of the mixture.
 - b) A metal Chelate was extracted to the extent of 80% when equal volumes of aqueous and organic phases were shaken together. What will be the % extraction? If the volume of the organic phase is doubled.
 - c) For a given system, calculate the percent extracted for a volume ratio $\frac{V_o}{V_a}$ of 1 and 10, for a single extraction. (Given: D = 10)
- Q.4** Attempt **ANY THREE** of the following: [12]
- a) Explain with diagram premixed burners used in flame emission spectroscopy.
 - b) Write a note on flame ionization detector.
 - c) Discuss the various steps involved in column chromatography.
 - d) Describe the match box model of chromatographic separation.
- Q.5** Attempt **ANY FOUR** of the following: [12]
- a) Define and explain the following terms:
i) Monochromator ii) Chemical interference iii) Spectral interference
 - b) Write a note on percent extracted.
 - c) Explain in brief about batch extraction method of solvent extraction.
 - d) Give the principle of FES.
 - e) Write a note on comparison of advantages and disadvantages of paper chromatography with TLC.
 - f) Discuss the various types of pumps used in HPLC.

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