

T.Y.B.SC. SEM – VI (2014 COURSE) : WINTER - 2017

SUBJECT: CHEMISTRY: ANALYTICAL CHEMISTRY – VI

Day: Monday
Date: 30/10/2017

Time: 12.00 NOON TO 02.00 PM
Max. Marks: 40

W-2017-0688

N.B.:

- 1) All questions are **COMPULSORY**
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.
- 4) Draw neat diagrams **WHEREVER** necessary.

SECTION-I

Q.1 Attempt any **TWO** of the following: **(10)**

- a) Discuss the match Box model in detail with diagram.
- b) Explain how multiple extractions are more efficient than single extraction.
- c) Describe percent extracted (% E) and factors affecting percent extraction.

Q.2 Attempt any **TWO** of the following: **(10)**

- a) Give a schematic diagram for HPLC and explain the function of each component.
- b) Discuss the various interferences caused in flame photometry.
- c) Give the principle of column chromatography and explain working of it in detail with diagram.

SECTION-II

Q.3 Attempt any **TWO** of the following: **(10)**

- a) Describe the technique of Gas chromatography with suitable diagram.
- b) Discuss the Craig counter current extraction process.
- c) Write any two applications of FES.

Q.4 Attempt any **TWO** of the following: **(10)**

- a) In chromatographic separation of mixture consists of X, Y, Z components. Solvent front is 13.2 cm while distance travelled by X is 8.2 cm, for Y 5.8 cm and for Z 7.8 cm. The unknown compound D has R_f value 0.6. Find out the distance travelled by unknown compound.
- b) Calculate the distribution ratio (D) when Fe (III) is extracted from hydrochloric acid with tributyl phosphate if the volume of organic phase is 10 ml and volume of the aqueous phase is 25 ml whereas % E is 99.8.
- c) A mixture of gases composed of benzene, toluene and xylene was resolved by gas chromatography. The peak areas were found to be 25cm^2 , 15cm^2 and 45cm^2 respectively. Calculate the percentage composition of the mixture.

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