# T.Y.B.SC. SEM – VI (2014 COURSE) : SUMMER - 2018

## SUBJECT: CHEMISTRY: ANALYTICAL CHEMISTRY – VI

Day: **Wednesday** Time: **12.00 NOON TO 02.00 PM**

Date: **18/04/2018** **S-2018-0780** Max. Marks: 40

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**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.

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### SECTION-I

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

**a)** Describe in detail continuous extraction process.

**b)** Write the principle of chromatography and give its classification based on stationary and mobile phase.

**c)** Explain with suitable diagram total consumption burner used in FES.

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

**a)** What is thin layer chromatography? Describe it with a neat diagram.

**b)** What are the various events that occur when a solution containing anion is atomized through flame?

**c)** Discuss the working of gas chromatography with suitable diagram.

### SECTION-II

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

**a)** What is HPLC? Explain its principle and the technique of separation.

**b)** Write the applications of solvent extraction in detail.

**c)** Define and explain the following terms:

i) Monochromator ii) Interference

iii) Distribution coefficient iv) Distribution ratio

v) Chromatography

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

**a)** Calculate the distribution ratio (D) and % E when 40ml of an aqueous solution of 0.2M organic compound is shaken with 20ml of ether. It is reported that 1.5mmol of organic compound remain in the aqueous layer after extraction.

**b)** A mixture of benzene, toluene and xylene was analyzed by gas chromatography. The peak areas were found to be $30cm^2$, $15cm^2$ and $50cm^2$ respectively. Calculate the percentage composition of the mixture.

**c)** A certain extraction system has a distribution ratio of 10. If 400mg of solute is dissolved in 100 ml of solvent A. Find the amount of solute extracted by one extraction with 100 ml of solvent B, which is immiscible with solvent A. (mol. wt. of solute = 71)

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