

S. Y. B. SC. (BIOTECHNOLOGY) SEM – IV (CBCS - 2015

COURSE) : WINTER - 2017

SUBJECT : ANALYTICAL TECHNIQUES

Day : Tuesday
Date : 31/10/2017

Time : 02.00 PM TO 05.00 PM
Max. Marks : 60

W-2017-0946

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**.
- 2) Answer any **TWO** questions from Q. 2, 3 & 4 in Section – I
- 3) Answer any **TWO** questions from Q. 6, 7, & 8 in Section – II.
- 4) Answers to both the sections should be written in **SEPARATE** answer book.
- 5) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Attempt any **FIVE** of the following: **(10)**
- a) What is Triple point? Give its example.
 - b) Draw PFD (Process Flow Diagram) for general waste water treatment.
 - c) State Fickes Law.
 - d) What is osmotic pressure?
 - e) Define radio isotopes.
 - f) What is filter cake? Enlist types of filter cake.
- Q.2** Answer the following: **(10)**
- a) Explain the principle and applications of ultra filtration.
 - b) What are the advantages and disadvantages of lyophilization process?
- Q.3** Answer the following: **(10)**
- a) Explain principle and working of any one chromatography technique used for purification of protein.
 - b) Describe the principle and applications of HPLC.
- Q.4** Write short notes on: **(10)**
- a) Gas Chromatography
 - b) Magnetic Resonance Imaging (MRI)

SECTION - II

- Q.5** Attempt the following questions; **(10)**
- a) Compare the different types of electrophoresis techniques.
 - b) Differentiate between thermal conductivity detector and flame ionization detector.
- Q.6** Answer the following; **(10)**
- a) Explain MALDI-TOF with its applications.
 - b) What are electromagnetic radiations? Add a note on its applications in health care and agriculture industries.
- Q.7** Answer the following; **(10)**
- a) Explain principle of dialysis with its applications.
 - b) Explain poly acrylamide gel electrophoresis (PAGE) technique in detail.
- Q.8** Answer in brief: **(10)**
- a) Explain principle and application of reverse osmosis technique.
 - b) Explain the X-ray diffraction technique in detail.

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