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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