B. Sc. (Sem. VI) (CBCS) Examination

June / July - 2017

BT - 602 : Analytical Techniques in Biotechnology

Faculty Code : 003
Subject Code : 001622

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions : (1) Section-I covers compulsory one mark questions of 20 marks

(2) Figures on the right indicate marks.

SECTION - I

1   Answer the following :   **20**

1.   What is the SI unit of intensity of light ?

2.   Who gave the laws of Radioactive decay ?

3.   What is the whole body tolerable dose of radiation per year ?

4.   What is the full form of FPLC ?

5.   The special buffers which are used to establish a pH gradient in isoelectric focusing electrophores are known as _____.

6.   Who pioneer the work for the electrophoresis ?

7.   What serves as a stationary phase in paper chromatography ?

8.   What will be the regain value of G-10 sephadex gel ?

9.   What will be the T-value if the substance completely absorbs the incident light ?

10. _____ ratio is the basis of separation of ions in the mass spectrophotometer.

11. In which type of rotor sedimentation occurs across the diameter of the tube ?

12. Which type of detector is used to measure organic compound in GC ?

13. Which force is the governing factor in ion-exchange reaction ?
14. Bioreceptor + Transducer = _____.
15. _____ Chromatography is a separation method dependent upon molecular size.
16. One nanometer is equal to one billionth of a meter. TRUE/FALSE ?
17. The biosensor which can be used to measure the blood glucose is known as _____.
18. Buckminsterfullerene C_{60} is also known as _____.
19. Patent is granted to those who invents obvious process. TRUE/FALSE ?
20. A voltameter is a scientific instrument which can be use to measure _____.

SECTION - II

2 (A) Answer in short : (any 3 from 6)   6
    (1) Define Radiation.
    (2) Explain how can a pore size of a particular electrophoratic gel can be increased or decreased.
    (3) Give Beers and Lambert's law.
    (4) What is molecular biology ?
    (5) What is biochemistry ?
    (6) Explain Electroendoosmosis.

   (B) Answer specifically : (any 3 from 6)   9
    (1) Explain Scintillation.
    (2) Write the applications of radioactivity.
    (3) Describe the basic principle of sedimentation.
    (4) Explain the health hazard associated with radioactivity.
    (5) Describe the factors affecting μ.
    (6) Explain Autoradiography.

   (C) Write short notes on : (any 2 from 5)   10
    (1) Explain radioactive decaying.
    (2) Explain Mass spectroscopy.
    (3) Explain the principle and application of UV-visible spectroscopy.
    (4) Explain Density gradient centrifugation.
    (5) Explain Capillary Electrophoresis.

SECTION - III

3   (A) Answer in short : (any 3 from 6)   6
         (1) Define biosensors.
         (2) Define Nanotechnology.
         (3) Explain Partition principle in chromatography.
         (4) Which type of spectroscopy is used to find out
              atomic concentration and give its applications ?
         (5) Define electroanalytical techniques.
         (6) What is Rf ?
     (B) Answer specifically : (any 3 from 6)   9
         (1) Define: patenting, copyright and trade secret.
         (2) Explain the class of biosensors.
         (3) Write down the biological application of Biosensors.
         (4) What is the fundamental concept involved in
              nanotechnology ?
         (5) Explain any one type of plane chromatography.
         (6) Give the general difference between Normal and
              Reverse chromatography.
     (C) Write short notes on : (any 2 from 5)   10
         (1) Explain Gel filteration chromatography.
         (2) Explain HPLC.
         (3) Explain the principle of biosensor and write down
              its applications.
         (4) Explain tools and techniques involved in
              nanotechnology.
         (5) Explain IPR.

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