



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

SECOND SEMESTER – APRIL 2018

17PBT2ES02- BIOANALYTICAL TECHNIQUES

Date: 25-04-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- High speed refrigerated centrifuge operate at maximum
a) 150,000 g b) 100,000g c) 200,000 g d) 10,000 g
- The separation technique of charged molecules under influence of an electric current
a) Dot blot b) Electrophoresis c) Western Blot d) ELISA
- Infra-red radiation has a wavelength
a) 1mm-700nm b) 1nm-700nm c) 700nm-1500nm d) 1cm-700mm
- Technique which uses electric nebulization of liquid that results in formation of charged droplets
a) Electrospray b) MALDI
c) Scintillation counterr d) AAS
- Technique used to detect abnormal heart rythm
b) ERG b) ECG c) CT d) ESI

II. State whether the following are True or False.

(5x1=5 Marks)

- Greater the size of particle to be sedimented, greater the gravitational force.
- Capillary electrophoresis is a tool for studying properties of single charged species.
- Luciferase is a gene for chemiluminescence.
- X-ray diffraction determines the atomic structure of crystals.
- Electroretinogram is a test in which the electrical potentials generated by the retina of the eye are measured.

III. Complete the following

(5 x 1= 5 Marks)

- Common feature in all centrifuge is_____.
- Process of passing the mobile phase through the column is called_____.
- _____vibration is a difference in the length of a bond.
- Geiger-Müller tube is filled with an inert gas such as_____.
- _____ sensors are used in ECG.

IV. Answer the following within 50 words

(5 x 1 = 5 Marks)

- What are the different zones in a sedimentation tank?
- Mention any two uses of native PAGE.
- What is Planck's constant?
- Which kinds of radiation are detected by Geiger Miller tube?
- What is an *invivo* imaging study?

PART B

Answer the following each within 500 words.

(5 x 8 = 40 Marks)

Draw diagrams wherever necessary.

21. (a) Describe the principle and working of a radial flow sedimentation tank.

OR

(b) Write a note on different methods of cell disintegration.

22. (a) Give an account on paper chromatography.

OR

(b) Explain the principle and theory of capillary electrophoresis.

23. (a) Describe the wave properties and particle properties of electromagnetic waves.

OR

(b) Write a brief account on fluorescence spectroscopy.

24. (a) Discuss the working of liquid scintillation counter.

OR

(b) Write briefly about the electrospray ionization technique.

25) (a) Give notes on computed tomography.

OR

(b) What is an electroretinogram? Briefly explain the principle of an electroretinogram.

PART – C

Answer any TWO of the following, each within 1500 words.

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Give an account on differential centrifugation technique.

27. Write an essay on pulse field gel electrophoresis.

28. Discuss the instrumentation, principle and working of atomic absorption spectroscopy.

29. Describe the working method, theory and applications of MALDI-TOF.

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