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PA-003-001622 Seat No. _____

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

March / April - 2020

BT - 602 : Analytical Techniques In Biotechnology

(Old Course)

Faculty Code : 003

Subject Code : 001622

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

1 Objective type Questions : **20**

(1) The ability of each type of rardiation to pass through matter is expressed in terms of _____.

(2) Who developed a `particle detector' which is a gas filled counter use to detect 'ionising radiation' in 1928?

(3) _____ is the use of X-ray film to detect radioactive materials.

(4) _____ is a type of energy realised by atoms in the form of electromagnetic waves or particles.

(5) Full form of SDS-PAGE is _____.

(6) _____ is an electrophoretic technique for separating different molecules by differences in their isoelectric point.

(7) Swing-buckets are preferred for rate-zonal separations, because the distance between the outside of the meniscus and the outside of the bottom of the tube is long enough for separation to occur. TRUE/FALSE.

(8) In PAGE protein migrates by _____ to _____ ratio.

(9) Visible light covers the range of wavelengths from _____ to _____ nm.

(10) _____ is an analytical technique that measures the mass-to-charge ratio of ions.

(11) Which region of spectrum is associated with molecular vibration?

(12) Full form of NMR is _____.

(13) HETP is an acronym for _____.

(14) If partition is the basic separation phenomena in paper chromatography then water molecules in the paper is considered as a stationary phase. TRUE/FALSE.

(15) Full form of FPLC is _____.

(16) _____ chromatography seperates proteins solely on the basis of molecular size.

(17) Bioreceptor+Transducer = _____.

(18) Full form of IPR is _____.

(19) _____ technique can be used to measure the heat of chemical reactions or physical changes as well as heat capacity.

(20) In India, Patenting lasts for _____ years.

2 (A) Answer the following : (Any **Three**) **6**

(1) What is Radioactivity?

(2) What is becquerel?

(3) Define: Electrophoresis.

(4) What is Electroendosmosis?

(5) Define: Centrifugation.

(6) What is Refraction?

(B) Answer the following : (Any **Three**) **9**

(1) What health hazards are associated with radioactivity?

(2) What is molecular biology?

(3) What is Electrophoretic mobility?

(4) Enlist types of rotars and give one use in centrifuge.

(5) Explain basic principle of Electrophoresis.

(6) State Beer Lambert's law and limitations of Beer-Lambert's law.

(C) Answer the following : (Any **Two**) **10**

(1) Explain laws of Radiation.

(2) Write a note on applications of Radioactivity.

(3) Explain SDS-PAGE.

(4) Write a note on basic principle of sedimentation.

(5) Explain UV-Visible light spectroscopy.

3 (A) Answer the following : (Any **Three**) **6**

(1) What is Chromatogrphy?

(2) What is Spectroscopy?

(3) Define : Retention time.

(4) Define : Biosensors.

(5) Define : Nanotechnology.

(6) What is copyright?

(B) Answer the following : (Any **Three**) **9**

(1) Draw the figure of the instrument lay out of Mass spectroscopy.

(2) Explain partition coefficient.

(3) Explain top-down approach in nano technology.

(4) Explain voltametry.

(5) Explain patenting.

(6) Write the characteristics of Ideal Biosensors.

(C) Answer the following : (Any **Two**) **10**

(1) Explain HPLC.

(2) Give the principle and applications of IR.

(3) Explain the classification of chromatography.

(4) Describe the Applications of Biosensors.

(5) Discuss IPR.