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PF-003-001621 Seat No. _____

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

July - 2018

BT - 602 : Analytical Techniques in Biotechnology

Faculty Code : 003

Subject Code : 001621

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

Instructions : (1) Question-1 covers compulsory one mark questions of 20 marks.

(2) Figures in the right indicate marks.

1 Objective type Questions : **20**

(1) The SI unit of intensity of light is candela. TRUE /FALSE.

(2) Who gave the laws of Radioactive decay ?

(3) 5rem/year is the whole body tolerable dose of radiation per year. TRUE/FALSE.

(4) What is the full form of FPLC ?

(5) Carrier ampholytes are special buffers which are used to establish a pH gradient in _____ electrophoresis.

(6) A. Tiseleus and co workers were the pioneer the work for the _____ technique.

(7) _____ is a stationary phase in paper chromatography.

(8) What will be the regain value of G-100 sephadex gel?

(9) What will be the T-value if the substance is completely transparent and the incident Light transmits completely?

(10) Charge to Mass ratio is the basis of separation of ions in the mass spectrophotometer. TRUE/FALSE.

(11) In _____ rotor sedimentation occurs across the diameter of the tube.

(12) _____ detector is used to measure organic compound in GC?

(13) Electrostatic force is the governing factor in ion-exchange reaction. TRUE/FALSE.

(14) Bioreceptor + _____ = Biosensors.

(15) Molecular sieve Chromatography is a separation method dependent upon _____

(16) One nanometer is equal to one millionth of a meter. TRUE/FALSE.

(17) Glucometer is used to measure the blood glucose is known as _____

(18) Buckminsterfullerene C_{16} is also known as bucky ball. TRUE/FALSE.

(19) Patent is granted to those who invents unobvious process. TRUE/FALSE.

(20) A _____ is a scientific instrument which can be use to measure electric charge.

2 (A) Answer in short : (any **three** from 6) **6**

(1) State Beers and Lamberts law.

(2) What is kD ?

(3) What is molecular biology and Biochemistry ?

(4) What factors affects the rate of Electrophoresis ?

(5) What is Radiation composed of and define radiation.

(6) Explain how can a pore size of a particular electrophoratic gel can be changed ?

(B) Answer specifically : (any **three** from 6) 9

(1) Explain GM Counter.

(2) Explain Autoradiography.

(3) What is the basic principle of sedimentation.

(4) Explain the health hazard associated with radioactivity.

(5) Describe the factors affecting Electrophoretic mobility.

(6) Write the applications of radioactivity.

(C) Write short notes on : (any **two** from 5) **10**

(1) Explain radioactive decay laws.

(2) Explain Mass spectroscopy.

(3) Explain the principle and application of UV-visible spectroscopy.

(4) Explain types of rotors used in centrifugation.

(5) Explain Capillary Electrophoresis.

3 (A) Answer in short : (any **three** from 6) **6**

(1) Define biosensors.

(2) Define Nanotechnology.

(3) Explain Partition principle in chromatography.

(4) Write the applications of NMR Spectroscopy.

(5) What is half cell ?

(6) What is Retardaton factor ?

(B) Answer specifically : (any **three** from 6) **9**

(1) What is copyright ?

(2) Classify : biosensors.

(3) Write down the biological application of Biosensors.

(4) Explain tools involved in nanotechnology.

(5) Explain any one type of plane chromatography.

(6) What is resolution, selectivity in terms of chromatography ?

(C) Write short notes on : (any **two** from 5) **10**

(1) Explain Gel permeation chromatography.

(2) Explain High Performance Liquid Chromatography

(3) Explain principle and generations of Biosensors.

(4) Explain application of nanotechnology.

(5) Explain patenting.
