



**JB-003-1016042**

Seat No. \_\_\_\_\_

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

**August – 2019**

**BT - 602 : Analytical Techniques in Biotechnology**

**Faculty Code : 003**

**Subject Code : 1016042**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- 1 (A) Answer the Question : 4
- (1) \_\_\_\_\_ SI unit of radioactivity.
  - (2) Full form of DPS
  - (3) \_\_\_\_\_ is measure of the ability of the method to give a consistent result
  - (4) The study of total proteins in the cell is called \_\_\_\_\_
- (B) Answer the Question - Any **One** out of Two : 2
- (1) What is significance of n/p ratio?
  - (2) What is significance of  $t_{1/2}$ ?
- (C) Answer the Question-Any **One** out of Two : 3
- (1) Define Radioactivity. Write in detail about units of Radioactivity.
  - (2) Discuss in detail about Health hazards associated with radioactivity.
- (D) Answer the Question - Any **One** out of Two : 5
- (1) How to measure radioactivity?
  - (2) What is radioactive decay? Write in detail about types of radioactive decay.

- 2 (A) Answer the Question : 4
- (1) In an SDS-PAGE Gel, proteins are denatured by the \_\_\_\_\_
  - (2) In normal phase chromatography, the stationary phase is made \_\_\_\_\_
  - (3) Role of BPB in Electrophoresis
  - (4) \_\_\_\_\_ is technique which works under the influence of centrifugal force.
- (B) Answer the Question - Any **One** out of Two : 2
- (1) Name different types of buffers used in the SDS PAGE
  - (2) Write properties of AGE
- (C) Answer the Question - Any **One** out of Two : 3
- (1) Write principle and applications of Native gel
  - (2) Derive the equation to establish relationship between RCF and RPM
- (D) Answer the Question - Any **One** out of Two : 5
- (1) Write in detail about principle and applications of 2D gel
  - (2) Write principle and applications of centrifugation
- 3 (A) Answer the Question : 4
- (1) \_\_\_\_\_ is branch of science which deals with interaction of light with matter
  - (2) What is range for UV light?
  - (3) \_\_\_\_\_ is the study of the electromagnetic radiation absorbed and emitted by atoms
  - (4) \_\_\_\_\_ technique is widely used to determine functional groups in molecules

- (B) Answer the Question - Any **One** out of Two : **2**
- (1) State Beer's Lambert Law and any two limitations of Law
  - (2) Write applications of Microtiter plate reader
- (C) Answer the Question - Any **One** out of Two : **3**
- (1) What is atomic spectroscopy? Write basic difference between AAS and AES
  - (2) Derive Bragg equation for X ray crystallography
- (D) Answer the Question - Any **One** out of Two : **5**
- (1) What is NMR? Discuss in detail about fundamentals and applications of NMR
  - (2) Discuss in detail about instrumentation of UV Visible spectrophotometer
- 4 (A) Answer the Question : **4**
- (1) Ion exchange chromatography is based on the \_\_\_\_\_
  - (2) Full form of FPLC & UPLC
  - (3) Distance travelled by analyte divided by distance travelled by the solvent front is \_\_\_\_\_
  - (4) \_\_\_\_\_ elution is procedure changing the solvent composition over time
- (B) Answer the Question - Any **One** out of Two : **2**
- (1) Write properties of Mobile phase
  - (2) Write advantages of TLC over PC
- (C) Answer the Question - Any **One** out of Two : **3**
- (1) Write properties of gel matrices used in gel filtration chromatography.
  - (2) Write in details about detectors used in the GLC

- (D) Answer the Question - Any **One** out of Two : **5**
- (1) What is HPLC? Discuss in detail about instrumentation and applications of HPLC
  - (2) What is principle of chromatography? Discuss in detail about Affinity chromatography
- 5** (A) Answer the Question : **4**
- (1) Nanotechnology is also called \_\_\_\_\_
  - (2) Full form of MALDI TOF
  - (3) A patent lasts for \_\_\_\_\_ years
  - (4) \_\_\_\_\_ a symbol, design, word, or phrase that identifies one business goods or services from those of another.
- (B) Answer the Question - Any **One** out of Two : **2**
- (1) Write application of Biosensor.
  - (2) What is copyright?
- (C) Answer the Question - Any **One** out of Two : **3**
- (1) Write applications of nanotechnology.
  - (2) Write ideal characteristics of Biosensors
- (D) Answer the Question - Any **One** out of Two : **5**
- (1) What is Mass spectrophotometer? Discuss in detail about different sources for ionization of molecule and applications of MS
  - (2) What is Patent? Write procedure to get patent and applications.