



**RY-003-1016042**

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

**B. Sc. (Sem. VI) (CBCS) (W.I.F. 2016) Examination**

**March - 2019**

**Biotechnology : Paper - BT-602**

*(Analytical Technique in Biotechnology)*

*(New Course)*

**Faculty Code : 003**

**Subject Code : 1016042**

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

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.  
(2) Right side figures indicate marks of the question.

- 1 (A) Objective type questions : 4
- (1) Write the unit of radioactivity.
  - (2) What is the use of scintillation counting ?
  - (3) What do you understand by  $\alpha$ -decay.
  - (4) Write one example of radioactive isotope.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) Write any two health hazards associated with radioactivity.
  - (2) Discuss type of radioactivity.
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Write notes on detection and measurement of Radioactivity.
  - (2) Write on scintillation counting.

- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Explain the application of Radioactivity.
  - (2) Give detail account of Autoradiography.
- 2** (A) Objective type questions : **4**
- (1) Define isoelectric point.
  - (2) Which centrifugation is generally used to separate organelles and other sub-cellular particles on the basis of sedimentation rate.
  - (3) Write role of ammonium persulphate in electrophoresis.
  - (4) Define Isopycnic Centrifugation.
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) Write about support media.
  - (2) What do you understand by 2D PAGE.
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Write basic principle of electrophoresis.
  - (2) Explain the principle of sedimentation.
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Explain the SDS PAGE in detail.
  - (2) Discuss the different component of centrifuge.
- 3** (A) Objective type questions : **4**
- (1) What is emission spectra ?
  - (2) Write one Biological application of X-rays.
  - (3) What is use of microtiter plate ?
  - (4) Define extinction coefficient.

- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) Differentiate refraction and diffraction.
  - (2) Explain Bragg's law.
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Write the properties of electromagnetic radiation.
  - (2) What is Beer-Lamberts law.
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Write principle and application of UV-Visible light spectroscopy.
  - (2) Give the detail account of NMR.
- 4** (A) Objective type questions : **4**
- (1) Define Rf value.
  - (2) What is partition coefficient.
  - (3) Write the role of detector in GC.
  - (4) What are ion exchangers ?
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) What are importance of stationary and supporting phase in chromatography.
  - (2) Write properties of solvent used in chromatography.
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Write on size exclusion chromatography.
  - (2) What are the difference between HPLC and UPLC ?
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Discuss about TLC in detail.
  - (2) Explain principle, instrumentation and application of GC.

- 5 (A) Objective type questions : 4
- (1) Define nanotube.
  - (2) Write role of transducer in Biosensor.
  - (3) What is electrometer tube ?
  - (4) Why IPR is needed.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) Write principle of Biosensor.
  - (2) Discuss application of Biosensor.
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Write application of nanotechnology.
  - (2) Explain different type of Biosensor.
- (D) Write a note on : (Any **One** out of Two) 5
- (1) Explain the principle and instrumentation of Mass spectroscopy.
  - (2) Define Patent. What are the criteria for granting patent ?
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