

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

**JH-102**

**January-2021**

**B.Sc., Sem.-III**

**202 : Biotechnology  
(Methods in Biotechnology)**

**Time : 2 Hours]**

**[Max. Marks : 50**

**Instructions :** (1) Draw figures wherever necessary.  
(2) Write question number against each answer.  
(3) Answer any **three** out of initial **eight** main questions. Question **9** is compulsory.

1. (A) Write the principle and applications of Centrifugation. 7  
(B) Explain Molecular exclusion chromatography. 7
2. (A) Describe the principles of NMR and X-ray crystallography. 7  
(B) Explain briefly about electrophoresis. 7
3. (A) Distinguish between ELISA and RIA. 7  
(B) Explain radioactive tracer technique and its applications. 7
4. (A) What is radioactive isotope ? Write about commonly used radioisotopes. 7  
(B) Write about biological assay of antibiotics. 7
5. (A) Discuss the steps of PCR technique. 7  
(B) Write about different types and applications of PCR. 7
6. (A) Explain in detail about Southern blotting technique. 7  
(B) Write a note on microarrays. 7

7. (A) Summarize types of tissue culture. 7  
(B) Discuss stem cells and its applications. 7
8. (A) What are plant and animal viruses ? Give examples. 7  
(B) Explain strain improvement methods. 7
9. Answer in short, any **eight**. 8
- (1) Define RCF.
  - (2) What is the wavelength of visible region ?
  - (3) Write two applications of IR spectroscopy.
  - (4) Write the principle of filtration.
  - (5) What is RAST ?
  - (6) Name the dye used in immunoflorescence assay.
  - (7) What is the principle of GM counter ?
  - (8) How do you calculate partition coefficient ?
  - (9) Name the enzyme used in conversion of RNA to cDNA in RT-PCR.
  - (10) What is the function of Tm ?
  - (11) What is Northen blotting technique ?
  - (12) Who formulated MS medium ?
  - (13) What is totipotency ?
  - (14) Which biomolecule is detected in Microarray ?
  - (15) How is pure culture obtained ?
  - (16) Name two methods for preservation of microbial cultures.
  - (17) Give an example of ds DNA virus.
  - (18) What is mutant ?
  - (19) What is lyophilisation ?
  - (20) Define bioassay.
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