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Printed Pages : 3

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(21119)

Roll No.

M.Sc. (Biotechnology) -I Sem.

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**M. Sc. (Biotechnology) Examination,
November-2019**

**TOOLS AND TECHNIQUES OF
BIOTECHNOLOGY**

(H-104)

M. Sc. (Bio-Tech.)

Time : Three Hours] [Maximum Marks : 50

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt all the *five* questions. Each question carries 2 marks. Very short answer is required not exceeding 75 words. $5 \times 2 = 10$

1. Why 2D electrophoresis is better than SDS PAGE or IEF alone ?
2. Explain the principle of "density gradient centrifugation technique". How can it be used for separating different cellular components ?

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3. What are the applications of analytical ultracentrifugation in biology ? How sedimentation co-efficient and density of a protein are related ?
4. Why NMR is called "Nuclear Magnetic Resonance" and not simply nuclear magnetic spectroscopy ?
5. Define radiation dose ?

Section-B

(Short Answer Questions)

Note : This section contains three questions. Attempt any *two* questions. Each question carries five marks. Short answer is required not exceeding 200 words. $2 \times 5 = 10$

6. Write short note on ultracentrifugation ?
7. Differentiate between U.V. visible absorption spectroscopy and fluorescence spectroscopy.
8. Explain the mobile and stationary components of HPLC ?

Section—C

(Detailed Answer Questions)

Note : This section contains five questions. Attempt any *three* questions. Each question carries 10 marks.

Answer is required in detail. $3 \times 10 = 30$

9. Define microscopy ? Describe the structure, principle and working of SEM and TEM ?
10. What are the principles and applications of PAGE? Differentiate between Agar Gel electrophoresis and SDS-PAGE.
11. Briefly explain the principles of different types of spectroscopy along with their applications in Biotchnology.
12. Define radioactivity. What are the different types of subatomic particles released from naturally occuring radioisotopes ?
13. Describe briefly the principle and techniques of centrifugation. Also mention the types of centrifuges.