

M.Sc Sem.-2 Examination

P - 409

Biotechnology

June 2022

Time : 2-00 Hours]

[Max. Marks : 50

Instructions: All questions in Section I carry equal marks
 Attempt any THREE questions in Section II
 Question IX in Section II is compulsory

Section I (42 marks)

| | | |
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| Q I | (a) What are unique properties of nanomaterials and how are they used? | 7 |
| | (b) Write a detailed note on carbon nanotubes. | 7 |
| Q II | (a) Give an overview of applications of nanotechnology in the field of medicine. | 7 |
| | (b) Write a note on history leading to development of nanotechnology. | 7 |
| Q III | (a) What is HPLC? Write its principle and industrial applications | 7 |
| | (b) Give details on principle, applications and limitations of GLC | 7 |
| Q IV | (a) Write a note on detection of signals by NMR technique | 7 |
| | (b) Write a short note on the mechanism of AAS. | 7 |
| Q V | (a) Write a note on Primary biological databases. | 7 |
| | (b) Give the application of Bioinformatics in genomics and proteomics | 7 |
| Q VI | (a) Explain the role of bioinformatics in Rational Drug design. | 7 |
| | (b) Explain the features of data in GenBank and what is FASTA file format | 7 |
| Q VII | (a) What is PSA and explain Local Sequence alignment | 7 |
| | (b) Write a note on FASTA. | 7 |
| Q VIII | (a) Discuss PSA and explain Global sequence alignment with example. | 7 |
| | (b) Write a note on BLAST. | 7 |

Section II (8 marks)

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| Q IX | Short Questions (One mark each) | |
| | 1. What are nanowires | 1 |
| | 2. What are Dendrimers | 1 |
| | 3. Define mass/charge ratio | 1 |
| | 4. Define mobile and stationary phase of GLC | 1 |
| | 5. Enlist the resonance patterns used for analysis in NMR | 1 |
| | 6. Give the full form of NCBI. | 1 |
| | 7. Name one specialized database. | 1 |
| | 8. Construct a Dot plot with the sequences 'ATGCCGA' and 'ATCCGGA' | 1 |

