

B.Sc. Semester - 6 (CBCS) Examination**March/April-2023 (NEW COURSE)****Analytical Techniques and Bioinformatics (Core (New))****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q.1**(A) Give specific answers.****(04)**

1. Define: Radioactivity.
2. _____ to _____ nm wavelength ranges are associated with UV spectroscopy.
3. Which spectroscopy is working on principal of the emissions radiation?
4. Explain: Beer – Lambert's law

(B) Answer in Brief. (Any one out of two)**(03)**

1. Give the application of Gas Liquid Chromatography.
2. Describe in short: Size exclusion Chromatography.

(C) Write a Note on. (Any one out of two)**(07)**

1. Explain HPLC in detail.
2. Discuss in detail: ION Exchange Chromatography.

Q.2**(A) Give specific answers.****(04)**

1. Write the role of guard column in chromatography.
2. Explain: Stationary phase and Mobile phase.
3. Write two applications of Ion-exchange chromatography.
4. Write the full form of GC-MS.

(B) Answer in Brief. (Any one out of two)**(03)**

1. Give the short note on various detectors use in HPLC.
2. Write the basic short note on partition chromatography.

(C) Write a Note on. (Any one out of two)**(07)**

1. GC-MS.
2. Paper and thin layer Chromatography.

Q.3**(A) Give specific answers.****(04)**

1. Define: Electrophoresis.
2. Anions are migrated towards the anode in electrophoresis. (True/False)
3. Why do scientists load DNA of known sizes into the agarose gel?
4. Define: Buffer.

(B) Answer in Brief. (Any one out of two)**(03)**

1. Describe in short: IEF .
2. Write the brief about capillary electrophoresis.

(C) Write a Note on. (Any one out of two)**(07)**

1. 2D-PAGEs.
2. PFGE.

Q.4**(A) Give specific answers.****(04)**

1. Explain or Define: Probe and Primer.
2. Full form of RAPD.
3. _____ is a blotting technique used to detect a specific RNA sequence.?
4. Define: RNA.

(B) Answer in Brief. (Any one out of two)**(03)**

1. Chemical Synthesis of DNA.
2. Justify: Next generation sequencing will future of bioinformatics.

(C) Write a Note on. (Any one out of two)**(07)**

1. Various PCR techniques are widely applied for field of research and diagnosis.
2. Blotting techniques for detection a specific DNA sequence.

Q.5**(A) Give specific answers.****(04)**

1. Define: Bioinformatics.
2. In which year Human Genome Project was started.
3. BLAST is an example of Homology and similarity tool. (True/False)
4. Proteomics refers to the study of _____.

(B) Answer in Brief. (Any one out of two)**(03)**

1. Primary and Secondary Biological Databases.
2. Application and use of ENTREZ and SRS.

(C) Write a Note on. (Any one out of two)**(07)**

1. Importance of Bioinformatics in field of various science.
2. Justify: BLAST and FASTA is each dependant sequence Alignment tools.
