

B.Sc. Semester - 6 (CBCS) Examination**March/April-2023 (OLD COURSE)****ANALYTICAL TECHNIQUES AND BIOINFORMATICS(CORE)****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. Write the Limitations of Beer – Lambert's law.
2. Tungsten lamp is most commonly used source of ultraviolet light. (True/False)
3. Write wavelength range of near infrared light (nm).
4. Full form of AAS.

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

1. Which Spectroscopy is generally used to identify specific metallic elements? Write detail note on it.
2. Discuss: Dual-beam spectrophotometer with application.

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

1. Write detail note on Mass Spectroscopy.
2. Explain: Nuclear magnetic resonance.

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

1. Full form of FPLC.
2. UV detector is commonly used in GC Chromatography. (True/False)
3. Chromatography is a physical method that is used to separate and analyse the viscous mixtures. (True/False)
4. Write the any two types of detectors in chromatography.

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

1. Describe in short: thin layer Chromatography.
2. Write three differences between LC-MS and GC-MS.

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

1. HPLC.
2. Affinity Chromatography.

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

1. Give the full form of PAGE.
2. Write the combine use of ammonium persulphate and TEMED?
3. Define: zwitterion.
4. Define: Isoelectric point.

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

1. Biosensor Technology: Types and Applications.
2. Write short note on paper electrophoresis.

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

1. Justify: Agarose gel electrophoresis is widely used for separation of nucleic acid.
2. Explain in detail: SDS PAGE.

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

1. Non-PCR based molecular marker is _____. (RAPD/RFLP)
2. Define: karyotype.
3. Taq polymerase enzyme is isolated from _____ Bacterium.
4. Explain: Melting temperature in PCR.

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

1. Short note on: RFLP.
2. Over view of primer design in PCR.

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

1. Blotting techniques for RNA identification.
2. Principle and theory of PCR.

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

1. FASTA file format begins with _____symbol.
2. Define: Biological Database.
3. Define: RCSB.
4. _____ is an example of phylogenetic tree construction tool? (Pixel / BLAST)

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

1. Define database. Give types and example of each.
2. Explain the database which are applied for information retrieval from Biological Database.

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

1. Discuss: BLAST and FASTA.
2. Write the application of Bioinformatics.
