

B.Sc. Semester - 6 (CBCS) Examination

March/April -2020

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. Answer the following. (Any One Out of Two)

(07 marks)

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

B. Attempt any one. (Out of Two)

(04 marks)

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

C. Attempt any three. (Out of Five)

(03 marks)

1. Give Beer – Lambert's law.
2. _____ to _____ nm wavelength ranges is associated with UV spectroscopy.
3. Tungsten lamp is most commonly used source of ultraviolet light. (True/False)
4. Full form of AES and AAS.
5. Which compound is used as reference compound in AAS?

Q.2

A. Answer the following. (Any one Out of two)

(07 marks)

1. Explain GC-MS in detail.
2. Discuss: Paper and thin layer Chromatography.

B. Attempt any one. (Out of two)

(04 marks)

1. Give the short note on various detectors use in HPLC.
2. Describe in short: Partition Chromatography.

C. Attempt any three. (Out of Five)

(03 marks)

1. Name the Chromatography technique in which commonly used for the separation of volatile compound.
2. Define: Effective distribution coefficient.
3. Explain: Stationary phase and Mobile phase.
4. Full form of FPLC.
5. Flame ionisation detector is commonly used in Gas Chromatography. (True/False)

Q.3

A. Answer the following. (Any one Out of two)

(07 marks)

1. Short note on PFGE.
2. Explain in detail: Native gel electrophoresis.

B. Attempt any one. (Out of two)

(04 marks)

1. Explain autoradiography in short.
2. Biosensor Technology.

C. Attempt any three. (Out of Five)

(03 marks)

1. Give the full form of 2D-PAGE.
2. Anions are migrate towards the anode in electrolysis. (True/False)
3. Write the combine use of ammonium persulphate and TEMED?
4. Define: Isoelectric point.
5. _____ is commonly use as tracking dye in agarose gel electrophoresis.

Q.4

A. Answer the following. (Any one Out of two)

(07 marks)

1. Principle and technique of PCR Technology.
2. Explain: Maxam-Gilbert sequencing method in detail.

B. Attempt any one. (Out of two)

(04 marks)

1. Short note on SNP.
2. Western blotting.

C. Attempt any three. (Out of Five)

(03 marks)

1. Who discovered the PCR?
2. Full form of RAPD.
3. Name the various dyes used in FISH.
4. Define: karyotype.
5. _____enzyme is/are commonly used in RFLP.

Q.5

A. Answer the following. (Any one Out of two)

(07 marks)

1. Write the details of Sequence Alignment tools.
2. Importance of Bioinformatics in field of life-science.

B. Attempt any one. (Out of two)

(04 marks)

1. Write in brief about Information Retrial tools.
2. Primary and Secondary Biological Databases.

C. Attempt any three. (Out of Five)

(03 marks)

1. Define: Biological Database.
2. In which year Human Genome Project was started.
3. Write two methods for Construction of Phylogenetic tree using computer.
4. Give the full form of BLAST.
5. FASTA file format begins with < symbol. (True/False)
