

**Rayat Shikshan Sanstha's
Yashvantrao Chavan Institute of Science, Satara (Autonomous)**

**B. Sc. II BIOCHEMISTRY
Semester IV
Biochemical techniques & Bioinformatics (Paper III, BBCT401)**

Question bank

Definitions

1. Chromatography
2. Electrophoresis
3. Beer Lambert's law
4. Immobilization
5. Bioinformatics
6. Thin layer Chromatography
7. Electrophoretic mobility
8. Colorimeter
9. PCR
10. Databases
11. Bioinformatics
12. Ion exchange Chromatography
13. PAGE
14. UV spectrophotometer
15. Southern blotting
16. Paper chromatography
17. Ion exchange chromatography
18. Gel permeation chromatography
19. RF Value
20. Elution
21. Buffer
22. Bead volume
23. SDS PAGE
24. Absorption spectra
25. Beer Lambert's law

Long Questions

1. Explain ion exchange chromatography technique. Give its applications.
2. What is an Immobilization? Explain gel entrapment methods for enzyme immobilization.
3. Explain PAGE technique. Give its applications.
4. Explain the steps involved in gel permeation chromatography.
5. Explain SDS – PAGE technique. Give its applications.
6. Explain Sanger amino acid sequencing method and give its significance.
7. Explain paper chromatography technique. Give its applications.
8. Explain principle working and applications of colorimeter.
9. Explain nomenclature of DNA & protein sequences in detail.
10. Explain Paper electrophoresis technique. Give its applications.
11. Explain thin layer chromatography technique. Give its applications.

12. Explain PAGE technique. Give its applications.
13. Explain principle working, construction and applications of UV spectrophotometer.
14. Explain Edman amino acid sequencing method and give its significance.
15. Explain PCR technique. Give its applications.

Short Notes

1. Paper chromatography
2. Electrophoretic mobility
3. Colorimeter
4. PCR
5. Southern Blotting technique
6. ENTREZ
7. Paper chromatography
8. UV visible spectrometer
9. Northern Blotting technique
10. BLAST
11. PCR
12. Electrophoretic mobility
13. SDS – PAGE technique
14. Gel entrapment methods for enzyme immobilization.
15. PCR
16. Western Blotting technique
17. Sanger sequencing for amino acids
18. Edman sequencing for amino acids
19. Enzyme cleavage method for amino acid sequencing
20. Classification of databases
21. Data retrieval tools
22. Database similarity searching
23. Enzyme cleavage methods for protein sequencing
24. Significance of protein sequencing
25. Advantages of spectrophotometer over colorimeter

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**B. Sc. II BIOCHEMISTRY
Semester IV
Molecular Biology & Biotechnology (Paper IV, BBCT402)**

Question bank

Definitions

- 1) DNA
- 2) Transcription
- 3) Genetic engineering
- 4) Reverse transcriptase
- 5) Hyperglycemia
- 6) Replication
- 7) RNA
- 8) Codon
- 9) Cloning vectors
- 10) Hypoglycemia
- 11) Nucleosides
- 12) Translation
- 13) Restriction endonuclease
- 14) rDNA
- 15) AIDS
- 16) cDNA
- 17) Operon
- 18) Nucleotides
- 19) Genetic code
- 20) Plasmid
- 21) Homeostasis
- 22) Promotor site
- 23) Ori site
- 24) Central dogma of life
- 25) PBR322

Long Questions

- 1) Explain production of human insulin by rDNA technology.
- 2) Describe entry and release of HIV from CD4 cells.
- 3) Give the mechanism of prokaryotic transcription.
- 4) Explain mechanism of prokaryotic replication
- 5) Describe lysis of CD4 cells after the HIV infection.
- 6) Explain basic concept of gene cloning technique.
- 7) Describe the structure of HIV & explain natural course of AIDS.
- 8) Describe chain elongation process in protein biosynthesis.
- 9) Explain cDNA synthesis process.
- 10) Explain properties of Genetic code
- 11) Explain Watson Crick model of DNA
- 12) Explain Lac operon in presence and absence of lactose.

- 13) Explain initiation process of translation.
- 14) Explain DNA properties in detail.
- 15) Explain role of different enzymes used in genetic engineering.

Short Notes

- a) Metabolic effects of insulin
- b) Treatment of diabetes mellitus
- c) Genetic code
- d) cDNA
- e) Immunological abnormalities in AIDS
- f) Distinguish between DNA and RNA
- g) Lac operon
- h) Watson Crick model of DNA
- i) Mechanism of action of insulin
- j) Types of diabetes mellitus
- k) Structure of HIV
- l) Applications of genetic engineering
- m) Treatment of diabetes mellitus
- n) Restriction endonucleases
- o) Replication fork
- p) tRNA
- q) Mechanism of action of insulin
- r) Anti AIDS Drug
- s) rDNA
- t) PBR322
- u) Biosynthesis of insulin
- v) Chemical composition of DNA
- w) Chemical composition of RNA
- x) Nucleosides and nucleotides
- y) Properties of DNA
- z) Activation of amino acid for translation
- aa) Regulation of gene expression
- bb) Basic concept of gene cloning technique
- cc) Host e.g. *E. coli* used in genetic engineering
- dd) Production of human insulin by rDNA technology