



BBH-003-1016043

Seat No. _____

B. Sc. (CBCS) (Sem. VI) (W.E.F. 2016) Examination

July - 2021

BT-603 : Biotechnology

(Advance Molecular Technique & Bio-Informatics)

(New Course)

Faculty Code : 003

Subject Code : 1016043

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Unit - 1

- 1 (A) Answer the following **1×4=4**
- (i) Name any one enzyme used in PCR.
 - (ii) Which blotting technique used for the transcripts.
 - (iii) Write major importance of ddNTP in DNA sequencing.
 - (iv) What is annealing temperature?
- (B) Write importance of next generation sequencing. **2**
- (C) Discuss the southern blotting. **3**
- (D) Discuss the type of PCR in detail. **5**
- 2 (A) Answer the following **1×4=4**
- (i) What is the generally accepted length of primer in PCR.
 - (ii) Who discover the chain termination method for DNA sequencing.
 - (iii) Give one application of Next Generation Sequencing?
 - (iv) What is role of nitrocellulose membrane in blotting?
- (B) Give the major steps in PCR. **2**
- (C) Briefly write on artificial synthesis of DNA. **3**
- (D) Discuss the DNA sequencing method in detail. **5**

Unit - 2

- 3 (A) Answer the following 1×4=4
- (i) Write use of SNP marker.
 - (ii) Give an example of dominant genetic marker.
 - (iii) Write one application of mapping.
 - (iv) What is gene augmentation therapy.
- (B) Write on RFLP. 2
- (C) Write short notes on restriction mapping. 3
- (D) Give the principle and steps of DNA fingerprinting in detail. 5
- 4 (A) Answer the following 1×4=4
- (i) Define codominant marker.
 - (ii) In which type of gene therapy gene is directly inserted in patient body.
 - (iii) Which technique is used for study of DNA-protein interaction?
 - (iv) Define positional cloning.
- (B) Differentiate Micro satellite and Mini satellite 2
- (C) Explain chromosomal walking. 3
- (D) Give the detail account of gene therapy. 5

Unit - 3

- 5 (A) Answer the following 1×4=4
- (i) According to human genome project what are the estimated number of protein coding gene in human genome.
 - (ii) What is structural Bioinformatics.
 - (iii) Give one example of Bioinformatics Resource.
 - (iv) ExPASy is operated by.....
- (B) Enlist the name and importance of any two Bioinformatics Resources. 2
- (C) Give the major application of Bioinformatics. 3
- (D) Discuss the nature and importance of Biological databases. 5

- 6 (A) Answer the following 1×4=4
- (i) Each record in database is called.....
 - (ii) Which branch of bioinformatics deals with identification of drugs through the genomic study.
 - (iii) Which database resource used for understanding high-level functions and utilities of the biological system, such as the cell and the organism.
 - (iv) Give the name of largest gene in human.
- (B) Explain the branches of Bioinformatics. 2
- (C) Write important outcomes of human genome project. 3
- (D) Describe classification of Biological Databases in detail. 5

Unit - 4

- 7 (A) Answer the following 1×4=4
- (i) Give one example of primary database.
 - (ii) Comprehensive database used for study of human genetics and molecular biology is
 - (iii) Write down the data retrieval tool of NCBI GenBank.
 - (iv) Give application of SCOP.
- (B) Define quaternary protein structure with example. 2
- (C) Differentiate primary and secondary databases with one examples of each. 3
- (D) Give the detail account of GenBank 5
- 8 (A) Answer the following 1×4=4
- (i) What is PubMed.
 - (ii) Give an example of protein sequence database.
 - (iii) What is UniProt.
 - (iv) Give an example of primary database for nucleotide.
- (B) Write note on CATH. 2
- (C) Write short notes on any two literature database. 3
- (D) Give the detail account of protein databases. 5

Unit - 5

- 9** (A) Answer the following **1×4=4**
- (i) What is annotation?
 - (ii) Give any one name of sequence similarity search tool.
 - (iii) What is DNA microarray.
 - (iv) What is docking.
- (B) Write a note on comparative genomics. **2**
- (C) Briefly discuss the types of BLAST. **3**
- (D) Explain the importance of PCR primer. Discuss the suitable criteria for primer designing. **5**
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- 10** (A) Answer the following **1×4=4**
- (i) Give the name of any bioinformatic tool for primer designing.
 - (ii) Write use of Clustal W.
 - (iii) Write down the importance of phylogenetic analysis.
 - (iv) Which branch of genomics deals with the function and interaction of gene and protein?
- (B) Differentiate Pairwise and Multiple Sequence Alignment. **2**
- (C) Give the major steps of DNA microarray. **3**
- (D) Give the detail account of Computer aided drug discovery. **5**
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