DR-003-1016043   Seat No. _____

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

March / April - 2022

BT - 603 : Advanced Molecular Techniques &
Bioinformatics

Faculty Code : 003

Subject Code : 1016043

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

1   (a)   Answer the following :   **4**

(1)   What is PCR ?

(2)   Define : Primer.

(3)   Define : DNA Sequencing.

(4)   Enlist : Components use in PCR.

(b)   Answer the following : (any **one**)   **2**

(1)   What is gene machine ?

(2)   Enlist steps of blotting.

(c)   Answer the following : (any **one**)   **3**

(1)   Write a note on application of southern blotting.

(2)   Short note : Western blotting.

(d)   Answer the following : (any **one**)   **5**

(1)   Explain: Northern blotting.

(2)   Explain: Next generation sequencing.

2 (a) Answer the following : 4

    (1) Write examples of molecular markers.

    (2) Define: Restriction exonuclease.

    (3) What is restriction modification ?

    (4) Full form : VNTR.

    (b) Answer the following : (any **one**) 2

    (1) Write about SSR.

    (2) Write about micro satellite.

    (c) Answer the following : (any **one**) 3

    (1) Short note: Restriction mapping.

    (2) Write a brief note on chromosomal walking.

    (d) Answer the following : (any **one**) 5

    (1) Explain: RAPD analysis.

    (2) Write a detail note on gene therapy.

3 (a) Answer the following : 4

    (1) What is Human genome project ?

    (2) Write importance of metabolic databases.

    (3) When the NCBI was established ?

    (4) Full form: KEGG.

    (b) Answer the following : (any **one**) 2

    (1) Write full form: NCBI and EBI.

    (2) Write importance of human genome project.

    (c) Answer the following : (any **one**) 3

    (1) Short note on importance of biological database.

    (2) Write about molecular and research Applications of bioinformatics.

    (d) Answer the following : (any **one**) 5

    (1) Explain in detail about structural databases.

    (2) Explain : Literature databases.

4 (a) Answer the following :   **4**

     (1) DDBJ is protein and nucleic acid database both. (True / False)

     (2) PubMed is NOT structural database. (True / False)

     (3) What is GenBank ?

     (4) What is EBI ?

  (b) Answer the following : (any **one**)   **2**

     (1) What is Rasmol ?

     (2) Define : Secondary databases.

  (c) Answer the following : (any **one**)   **3**

     (1) Briefly classify different types of biological databases.

     (2) Write in short about CATH.

  (d) Answer the following : (any **one**)   **5**

     (1) Write a detail note on Human genome project.

     (2) Explain : NCBI.

5 (a) Answer the following :   **4**

     (1) What is phylogenetic tree ?

     (2) What is evolution ?

     (3) What is FASTA ?

     (4) Full form : BLAST.

  (b) Answer the following : (any **one**)   **2**

     (1) Write importance of sequence alignment.

     (2) Enlist branches of bioinformatics.

  (c) Answer the following : (any **one**)   **3**

     (1) Short note: Distance matrix method.

     (2) Write about pairwise alignment.

  (d) Answer the following : (any **one**)   **5**

     (1) Explain : multiple sequence alignment.

     (2) Explain : BLAST and its types.