B. Sc. (Sem. VI) (CBCS) Examination

June / July – 2017

BT-603 : Advance Molecular Tech. & Bioinformatics

Faculty Code : 003

Subject Code : 001623

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

1   Answer the following question in one word :   **20**

(1)   The BLAST program was designed by

(2)   Southern blotting is used to identify

(3)   The technique used to locate specific genes in the chromosome is

(4)   Name the scientist who developed the chain termination method of sequencing technique

(5)   Pyrosequecning involves sequencing by _____

(6)   The information retrieval tools of NCBI GenBank is

(7)   Name the probe used in RT-PCR

(8)   Which microorganism genome was first sequenced ?

(9)   KEGG is used for the study of

(10) Metagenomics is the study of _____ cell.

(11) Name the method used for the study of DNA-Protein interaction

(12) A comprehensive database for the study of human genetics is _____.

(13) NCBl was established in the year _____.

(14) _____ is non PCR based marker.

(15) What are cDNAs spots on a glass slide used for expression studies called?

(16) EST stands for

(17) Field of genomics which deal with DNA structure is called

(18) BLASTP is protein query against ------------ data bank

(19) For detriylation in phosphoramidite methods -----------
is released to remove the DMT group.

(20) Name one technique used for multiple sequence
alignment tools

2   (a)   Write any three out of six :   6

(1) Which are the core databases of Uniprot ?

(2) What is autosequecning ?

(3) How to calculate the annealing temperature in
PCR ?

(4) What is inverse PCR ?

(5) Which are the databases of protein ?

(6) What is the major functions of NCBI ?

(b)   Write any three out of six :   9

(1) Explain the different levels of SCOP.

(2) Criteria used for designing of primer.

(3) Explain the mechanism of chromosome walking.

(4) Explain the mechanism of microarray technique.

(5) Application of autoradiography in molecular biology

(6) Write a note on PDB.

(c)   Write any two out of five :   10

(1) Explain the process of DNA synthesis of
phosphoramidite method.

(2) Explain dideoxy method of DNA sequencing.

(3) Explain the mechanism and applications of
southern blotting technique.

(4) Write a note on molecular markers used in
molecular biology.

(5) Explain the scope and importance of bioinformatics.

3 (a) Write any three out of **six** : 6

    (1) What is primer ?

    (2) What is micro and mini satellite ?

    (3) Define bioinformatics.

    (4) Write the use of Taq polymerase.

    (5) What is restriction mapping ?

    (6) What is pairwise alignment ?

  (b) Write any three out of six 9

    (1) Explain the mechanism of RT-PCR.

    (2) Explain the process of Pyrosequecning.

    (3) Explain the mechanism of chromosome jumping.

    (4) Write a note on FASTA.

    (5) How to construct the phylogenetic tree with bioinformatics tools.

    (6) What is orthologous and paralogous ?

  (c) Write any **two** out of five : 10

    (1) Explain the process of PCR technique.

    (2) Explain biological database in detail.

    (3) Explain the mechanism and applications of western blotting technique.

    (4) Write a note on BLAST and its uses.

    (5) Explain the mechanism of microarray technique.

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