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PH-003-001623 Seat No. _____

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

July - 2018

BT - 603 : Advance Molecular Techniques & Bioinformatics

Faculty Code : 003

Subject Code : 001623

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

Instructions : (1) Answers for all must be written in your answer sheet.

(2) Figures on the right indicate full marks.

1 Attempt all : **20**

(1) Which technique is used for separation of protein ?

(2) _____ is the simplest non-PCR based molecular marker.

(3) _____ enzyme is used in PCR.

(4) Give the full name of DDBJ _____.

(5) Oligonucleotide used by Taq Polymerase is known as _____.

(6) Genbank is nucleotide database. True or false.

(7) PDB is a sequence database. True or false.

(8) What temperature is used for DNA denaturation of DNA in PCR ?

(9) Who _____ synthesized gene artificially for the first time.

(10) _____ molecular marker uses random annealing of primer.

(11) _____ scientist developed atlas of protein sequence and structure.

(12) Which tool is utilized for homology and similarity search ?

(13) _____ is information retrieval tool utilized by NCBI.

(14) Which program is utilized for multiple sequence alignment ?

(15) _____ alignment procedure aligns entire sequence.

(16) What substrate do reverse transcriptase uses ?

(17) Give URL of NCBI.

(18) MEDLINE and pubmed is _____ database.

(l9) Taq polymerase has 5' to 3' exonuclease activity. True or False.

(20) Genome of cDNA library do not have intron. True or False.

2 (A) Explain following questions : (Any **Three**) **6**

(1) Explain DNA amplification.

(2) Define molecular markers.

(3) What is CATH ?

(4) Structural database Vs sequence database.

(5) Explain functional genomics.

(6) Explain PIR.

(B) Attempt following questions : (Any **Three**) **9**

(1) Write a note on EMBL database.

(2) What is PDB ? How to access it?

(3) Explain RAPD.

(4) Explain anchored PCR.

(5) Write a note on ExPasy.

(6) Explain SCOP.

(C) Attempt following questions : (Any **Two**) **10**

(1) Explain artificial synthesis of DNA.

(2) Write a note on chromosome jumping.

(3) Explain primary protein database.

(4) What is bioinformatics ? Write role of it in biotechnology.

(5) Write a note on microarray.

3 (A) Explain following questions : (Any **Three**) **6**

(1) What is Autoradiography ?

(2) Explain comparative genomics.

(3) What is EST ?

(4) Accession no Vs GI number.

(5) What is specialty of molecular beacons?

(6) What is TrEMBL?

(B) Attempt following questions : (Any **Three**) **9**

(1) Explain primer designing.

(2) Compare global and local alignment.

(3) Explain automated gene Sequencing

(4) Explain human genome project.

(5) Explain Sanger's method.

(6) Write a note on phylogenetic analysis.

(C) Attempt following questions : (Any **Two**) **10**

(1) Explain Blotting techniques in detail.

(2) Explain principle and application of DNA foot printing.

(3) What is BLAST ? How is it different from FASTA ? Describe the types of BLAST with utility.

(4) Explain structural classification of protein.

(5) What is PCR ? Write a note on general steps of PCR and its applications.
