

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 5959

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Your Roll No.....

Unique Paper Code : 216/223/558

Name of the Course : B.Sc. (H) Botany

Name of the Paper : Bioinformatics (LSPT-409)

Semester : V

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question No. 1 is compulsory.
3. Attempt a total of 5 questions, including Q. 1.

1. (a) Define any five of the following :

- (i) Open Reading Frame
- (ii) Bit score
- (iii) Accession Number
- (iv) OTU
- (v) Motif
- (vi) Transcriptomics
- (vii) Annotation

(5×1=5)

P.T.O.

:

(b) Expand **any five** of the following :

- (i) TrEMBL
- (ii) CDD
- (iii) EST
- (iv) SCOR
- (v) KEGG
- (vi) OMIM
- (vii) NMR

(5×1=5)

(c) Match the following :

Column A

Column B

- | | |
|-------------------------------|-------------------------|
| (i) Literature database | (a) Primary database |
| (ii) Gene Expression database | (b) Structural database |
| (iii) Docking | (c) PubMed Central |
| (iv) MMDB | (d) SAGE map |
| (v) GenBank | (e) Autodock |

(5×1=5)

2. Write short notes on any **three** of the following :

- (a) Protein databases
- (b) Bootstrapping

- (c) Computer Aided Drug Design
- (d) Gap Penalty
- (e) Entrez (3×5=15)
3. Differentiate between any five :
- (a) BankIT and Sequin
- (b) Primary database and Derivative database
- (c) UniGene and HomoloGene
- (d) Cladogram and Phylogram
- (e) Protein database and Nucleotide database
- (f) Global alignment and Local alignment (3×5=15)
4. (a) What is DDBJ ? Give an account of various resources at DDBJ. (8)
- (b) What is Multiple Sequence Alignment ? Enumerate its uses. (7)
5. (a) What is BLAST ? With the help of schematic diagram, briefly explain the different types of BLAST. (10)
- (b) How can bioinformatics be applied for crop improvement. (5)
6. (a) What do you understand by molecular phylogeny ? Schematically depict the steps to choose an appropriate molecular phylogeny method, based on homology of the sequences. (9)

- (b) Comment on molecular clock. (6)
7. (a) Discuss briefly any three types of databases of NCBI. (9)
- (b) Discuss the importance of Spidey and e-PCR. (4)
- (c) What is QSAR ? (2)