

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-V • EXAMINATION – SUMMER • 2015

Subject Code: 650015

Date: 11-05-2015

Subject Name: Bioinformatics

Time: 02:30 pm to 05:00 pm

Total Marks: 70

Instructions:

1. Attempt all Q.stions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a): Do as directed.

[07]

- 1) Define Ktups.
- 2) State the Needleman Wunsch algorithm.
- 3) What is Genomes?
- 4) Full form of UPGMA
- 5) What is Flat file database?
- 6) What is BIO INFORMATICS?
- 7) What is the use of gnuplot & xgfe?

(b) Explain central dogma of molecular biology with diagram.

[07]

Q. 2 : Answer the following

a) What is data annotation & Data format?

[07]

b) Describe Watson & Crick model in detail.

[07]

OR

b) Write a Short note on:

1) Genbank

[04]

2) PDB

[03]

Q. 3 (a): Explain pairwise seQ.nce comparison in detail.

[07]

(b) Describe SCOP, CATH & uniQ. protein structured data set.

[07]

OR

Q. 3 (a) Describe protein resources databases in detail.

[07]

(b) What is SWISS model? Explain SWISS model server.

[07]

Q. 4 (a): Attempt following

1) List out all SQL commands and explain any six commands.

[04]

2) Describe Matlab and Octave.

[03]

(b) What is Data mining? Explain supervised and unsupervised learning in detail.

[07]

OR

Q.4 (a) : Differentiate

1) Global Alignment vs. Local Alignment

[04]

2) BLAT and FASTA algorithm

[03]

Q.4 (b) Explain XGobi and XGvis in detail. [07]

Q. 5 (a): Attempt following

1) List out & explain types of RNA. [04]

2) Why we use Linux and UNIX? [03]

(b) Explain importance of bioinformatics & also discuss the challenges in information processing? [07]

OR

Q.5 (a) Write a short note on

1) X-RAY Crystallography [04]

2) Gap Penalty [03]

Q.5 (b) Explain Replication and Transcription of DNA in detail. [07]
