Seat No.: \_ Enrolment No. **GUJARAT TECHNOLOGICAL UNIVERSITY** MCA - SEMESTER-V • EXAMINATION - SUMMER • 2015 Date: 11-05-2015 Subject Code: 650015 **Subject Name: Bioinformatics Total Marks: 70** Time: 02:30 pm to 05:00 pm **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 [04] 1) List out all SQL commands and explain any six commands. 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	[07]
challenges in information processing?	
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]

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