Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Bioinformatics and Biostatistics

Subject Code: 4SC04BIB1 **Branch: B.Sc.(Microbiology)**

Semester: 4 **Date : 15/04/2017** **Time : 10:30 To 01:30** **Marks : 70**

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

a)	Define Biostatistics.	1
b)	What is the difference between algorithm and Program?	1
c)	Which is the basic unit of heredity?	1
d)	Enlist the nitrogenous bases present in coding sequences.	1
e)	Give example of any two bioinformatics composite databases.	1
f)	What is the significance of building phylogenetic tree?	1
g)	What is the storage information available in biological database PDB?	1
h)	Enlist major three sources of Data.	1
i)	Define qualitative variables.	1
j)	Give example of any protein structure classification database.	1
k)	Which Institution maintains DDBJ database for DNA sequences?	1
l)	Define SNP database.	1
m)	What is the primary function of NRL-3D database?	1
n)	What is the primary source for PROSITE?	1

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

a)	Write a note on Nucleic acid Primary database GenBank.	**7**
b)	Discuss PIR (Protein Information Resources) and How it is associated with MIPS (Martinsried Institute for Protein research)?	**7**

Q-3 **Attempt all questions** **(14)**

a)	Write a short-note on NRL-3D and Enlist four secondary databases and their primary sources.	**7**
b)	Explain the expression of protein sequence comparison in form of PRINTS.	**7**

Q-4 **Attempt all questions** **(14)**

a)	Write a note on Needleman and Wunch algorithm for sequence alignment.	**7**

b) Explain regular expression by multiple sequence alignment of Protein sequences with appropriate example and briefly discuss BLOCKS. **7**

Q-5 **Attempt all questions** **(14)**

a) Write a note on Parsimony method for the analysis of multiple sequences to build phylogeny. **7**

b) Write a note on different structural forms of Proteins. **7**

Q-6 **Attempt all questions** **(14)**

Write a note on Homology modelling and explain different steps followed to perform protein structure prediction.

Q-7 **Attempt all questions** **(14)**

a) Explain different types of sources of data and define all types of variables. **7**

b) Write a note on measurement of central tendency. **7**

Q-8 **Attempt all questions** **(14)**

a) Calculate Mean, Mode and Median of the results of randomly selected five students of a same class for given data: **7**

Sr. No.	Student	% Scored
1	A	65
2	B	30
3	C	80
4	D	70
5	E	73

b) Write a note on DDBJ. **7**