GIET UNIVERSITY, GUNUPUR – 765022
M. Sc. (First Semester) Regular Examinations, February – 2024
22LSPC104 - Bioinformatics and Biostatic
(Life Science)

Time: 3 hrs   Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A   **(2 x 10 = 20 Marks)**

Q.1. Answer **ALL** questions

		CO #	Blooms Level
a.	Expand KEGG. Write its division.	CO1	K 1
b.	Which type of data are not accepted by Genbank database.	CO1	K 1
c.	Name the submission tools of DDBJ database.	CO1	K 1
d.	Write the difference between global alignment and local alignment.	CO2	K 2
e.	Draw flowchart of phylogenetic tree.	CO2	K 2
f.	Find the Hamming distance between two sequence HLIKLAAIWL and HLWKLAAIWA.	CO2	K 1
g.	Draw the flow chart of molecular docking .	CO3	K 1
h.	What is the difference between linear and non- linear correlations?	CO3	K 1
i.	Write the equation of regression X on Y and Y on X.	CO3	K 2
j.	Write the signification of F-test.	CO3	K 1

PART – B   **(10 x 5 = 50 Marks)**

Answer **ANY FIVE** questions

		Marks	CO #	Blooms Level
2. a.	Explain different layer of PIR database.	5	CO1	K 1
b.	Write the storing and retrieving method of NCBI.	5	CO1	K 1
3.a.	Find the optimal alignment and alignment score of two sequences GAAC and CAAGAC by using Smith-Waterman algorithm (Assume match=1,mismatch = -1 and gap = -2)	5	CO1	K 2
b.	Write the difference between BLAST and FASTA. Write its option .	5	CO2	K2
4. a.	Write short note on HMM.	5	CO2	K2
b.	Find the BLOSUM value of the given block	5	CO2	K1

         AAI

         SAL

         TAL

TAV

AAL

5.a. Design a phylogenetic tree by using UPGMA method.   5   CO3   K 2

	A	B	C	D
A	0			
B	8	0		
C	7	9	0	
D	12	14	11	0

b. Suppose there are 20,000aminoacid in the database of which 2000 are serin and there are 5000 amino acids in helical conformation of which 500 are serin. Calculate the type of information .   5   CO3   K 2

6. a. Explain the computational method of Drug design.   5   CO2   K 1

b. Explain the steps involve in Homology modelling.   5   CO2   K 1

7.a. Calculate the median and mode of the following data: 5   CO3   K 2

Size	15	25	35	45	55	65	75	85
Frequencies	5	9	13	21	20	15	8	3

b. Calculate the standard deviation of the following data: 5   CO3   K 1

Size	3.5	4.5	5.5	6.5	7.5	8.5	9.5
Frequency	3	7	22	60	85	32	8

8. a. Calculate correlation from the following data: 5   CO3   K 1

X	100	200	300	400	500	600	700
Y	30	50	60	80	100	110	130

b. Two samples A and B are drawn from two normal populations. From the following data test whether the two samples have the same variance at 5% level   5   CO3   K 2

A	60	65	71	74	76	82	85	87		
B	61	66	67	85	78	63	85	86	88	91