

2 ½ Hours

Total Marks: 75

1. Attempt **all** questions.
2. **All** questions carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.
5. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

Q 1 Do as directed (Any fifteen)**15**

1. _____ is not an example of an operating system.
a. Windows b. Linux c. Microsoft Office d. iOS
2. An algorithm is expressed in a graphical form known as a _____.
a. flowchart b. recipe c. graforithm d. none of the above.
3. A RAM fabricated with permanently stored data which cannot be erased is called a _____.
a. PermaRAM b. ROM c. PROM d. Both a and b
4. Magnetic surface recording device includes _____.
a. Floppy disk b. Tape drive c. Both a and b d. Neither a nor b
5. _____ is an example of a Boolean logic operator.
a. how b. what c. when d. and
6. _____ is a specialized database for *C. elegans*.
a. ABCdE b. ACeDb c. CeDb d. SDCe
7. _____ is used to send messages over the internet.
a. e-mail b. SMS c. post card d. telegram
8. Give the acronym for PHI- BLAST.
9. Define Program with respect to bioinformatics.
10. What are k-tupules in FASTA algorithm?
11. Define Signal with respect to Dot plot.
12. What are HSPs?
13. What does E-value approaching zero indicate?
14. State any one goal of MSA (Multiple Sequence Alignment)?
15. The value of coefficient of correlation is _____, if the two variables show perfect positive correlation.
16. In regression line X on Y, Y is _____ variable.
17. For Contingency table in a chi-square test, if there are 2 rows and 2 columns, what will be the degree of freedom.
18. How is type 1 error made in statistical hypothesis testing?
19. State true or false: t-test is used when the sample size is less than 30.
20. Give the formula to compute Z- test.

Q. 2 A Elaborate on the classification of biological databases. **08**

Q. 2 B Explain with suitable examples - specialized genomic resources. **07**

OR

Q. 2 C Describe briefly CATH and SCOP classification of proteins. **08**

Q. 2 D Explain the need for protein visualization software with suitable example. **07**

Q. 3 A State the difference between PAM and BLOSSUM matrices. **08**

Q. 3 B What do you understand by Global and Local alignment? **07**

OR

Q. 3 C Explain BLAST and its types. **08**

Q. 3 D What phylogenetic analysis? Explain the various terms used in phylogenetic analysis. **07**

Q. 4 A Find Coefficient of correlation for the following data **08**

X	5	4	3	2	1
Y	2	4	6	8	10

Q. 4 B Give the steps in testing statistical hypothesis. **07**

OR

Q. 4 C Cattle were immunized for a cattle foot disease and following results were obtained. Was the immunization program effective. Use Chi-square test
(Given $X^2_{0.05, 1} = 3.84$) **08**

	Died	Survived	Total
Immunized	5	15	20
Non immunized	12	8	20
Total	17	23	40

Q. 4 D What is Regression? Explain regression lines and give regression equations. **07**

Q5 Write Short notes on **any three** of the following **15**

- Computer I/O devices.
- The internet.
- FASTA
- Identity and Similarity.
- t-test and its types.