Q. P. Code: 33982

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**

<div align="center">**OR**</div>

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**

<div align="center">**OR**</div>

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**

<div align="center">**OR**</div>

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**

Q 5 Write Short notes on **any three** of the following **15**

  a. Computer I/O devices.

  b. The internet.

  c. FASTA

  d. Identity and Similarity.

  e. t-test and its types.

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