

Exam. Code: 103202**Subject Code: 1312****B.A./B.Sc. 2nd Semester****BIOINFORMATICS****(Basic Mathematics, Biostatistics & Database
Management System)**

Time Allowed—Three Hours] [Maximum Marks—75

Note :—(1) Section A is compulsory. Each part is of 1.5 marks.

(2) Attempt **ONE** question from each unit of Section B. Each question is of 15 marks.

SECTION—A

Note :—All questions are compulsory. Each Question is of 1 mark.

1. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 3 & -1 & 3 \\ -1 & 0 & 2 \end{bmatrix}$, find $2A - B$.
2. A class consists of 12 boys and 10 Girls. A Committee of 3 students is constituted. What is the probability that committee has all the girls ?
3. Briefly define median with suitable example.
4. Briefly define range of function.
5. Give any three characteristics of DBMS.

6. Briefly define view in SQL.
7. Briefly define 3NF.
8. Explain *Select* statement with suitable example.
9. Write a short note on creation of Procedure in SQL.
10. Differentiate between local and stored Procedures.

SECTION—B

UNIT—I

1. (A) Find the inverse of the following matrix :

$$A = \begin{bmatrix} -1 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix} \quad 10$$

- (B) Differentiate $\log[(x+2)(x^3 - x)]$ w.r.t. x 5

2. (A) Write short notes on following :—

- (i) Transpose Matrix
- (ii) Conjugate Matrix
- (iii) Symmetric Matrix
- (iv) Determinant of Matrix
- (v) Identity Matrix. 10

- (B) Integrate $x^2 + 3x + 4$ with respect to x . 5

UNIT—II

3. (A) Discuss Poisson Distribution in detail. 8
 - (B) Calculate the Mean and Standard Deviation for following data : 7
- 7, 15, 10, 9, 4, 3, 7, 10, 10, 8, 16.

4. (A) Discuss correlation and distinguish between perfect positive and perfect negative correlation with suitable examples. 8
- (B) A husband and wife appear in an interview for two vacancies in the same post. The probability of husband's selection is $\frac{1}{7}$ and that of wife's selection is $\frac{1}{5}$. What is the probability that :
- (i) both of them will be selected ?
- (ii) only one of them will be selected ? 7

UNIT—III

5. (A) Discuss DBMS Architecture in detail. 7
- (B) Write short notes on following with suitable examples :
- (i) 3NF
- (ii) BCNF. 8
6. (A) Discuss ER Model in detail. 10
- (B) Discuss the advantages of Normalization. 5

UNIT—IV

7. (A) Explain the following SQL statements with suitable examples :
- (i) Update
- (ii) Select
- (iii) Insert
- (iv) Alter. 8
- (B) Discuss TCL statements along with suitable examples. 7

8. (A) Differentiate between multiple row and multiple column sub queries with suitable examples. 8

(B) Explain the use of Function in PL/SQL with example. 7