COURSE CODE (CREDITS): 20B11BI311   **MAX. MARKS: 35**
COURSE NAME: Bioinformatics Data Management
COURSE INSTRUCTORS: Dr. Shikha Mittal   **MAX. TIME: 2 Hours**

Note: (a) All questions are compulsory.
(b)Marks are indicated against each question in square brackets.
(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1. "At various levels various security measures are taken". Explain the statement by specifying what the various levels are and what security measures are taken at each level. (4 marks) [CO-6]

Q2. What do you mean by query optimization? Explain the various query optimization methods. (4 marks) [CO-5 & CO-6]

Q3. Give the current Normal Form and Normalize to 3rd if necessary. (4 marks) [CO-4]

OfficeEmp (OfficeNbr, Oaddress, EmpID, Ename, Eaddress)
OfficeNbr → Oaddress
EmpID → Ename, Eaddress

Q4. Explain the difference between two-tier and three-tier architectures. Which is better suited for Web applications? Why? (3 marks) [CO-1]

Q5. Consider the relations – (3 marks) [CO-2 & CO-3]

Project (P-No, P-Name, Cheif-Architect)
Employee (E-No, E-Name),
Assignee-to (P-No, E-No)

Using SQL, solve the following queries:
(a) Obtain details of employees working on the project named DATABASE.
(b) Get details of employees working on both projects P150 and P200.
(c) Find the employee numbers.

Q6. What do you mean by file organization? Describe various ways to organize a file. (4 marks) [CO-6]

Q7. What are ACID properties? Explain. (5 marks) [CO-5]

Q8. (8 marks) [CO-2, CO-3 & CO-4]

(a) Distinguish between volatile and non-volatile storage

(b) Explain the distinction among the terms—primary key, candidate key and the super key

(c) Write short note on UNION and INTERSECTION

(d) Differentiate between exclusive and shared lock with example