BENNETT UNIVERSITY
THE TIMES GROUP

Enrolment No: _____ Name of Student: _____

Department/ School: _____

END TERM MAKEUP EXAMINATION, ODD SEMESTER DECEMBER 2023

Mapping of Questions to Course and Program Outcomes							
Q.No.	1	2	3	4	5	6	7
CO	1	2	1	1	2	1	3
PO	1	3	1	2	2	2	4
BTL*[1]	2	5,6	2	3,4,5	4	4,2	4

COURSE CODE	**CSET201**	**MAX. DURATION**	**2 HRS**
COURSE NAME	**Information Management System**		
PROGRAM	**B. Tech.**	**TOTAL MARKS**	**35**

GENERAL INSTRUCTIONS: -

1. Do not write anything on the question paper except **name, enrolment number** and **department/school.**
2. Carrying mobile phones, smartwatches and any other non-permissible materials in the examination hall is an act of UFM.

COURSE INSTRUCTIONS:

a) Attempt all the questions. All are compulsory.

SECTION A

Max Marks: 20

A1) (a) Explain nested queries and correlated queries with examples. **(2.5 Marks)**

(b) Explain the way to represent cardinalities, roles, weak entities, and weak relations in E/R diagram. **(2.5 Marks)**

A2) (a) Let relational schema be R(ABCD) and functional dependencies are A→B, B→C, C→D. Test whether the decomposed relations, D(AB, BCD) are lossless or lossy? **(2.5 Marks)**

(b) Consider the Relation R(ABC) below:

A	B	C
2	2	2
2	2	3
3	3	2
4	3	3

Identify all Super Key(s) and Candidate Key(s) in this relation. **(2.5 Marks)**

A3) Explain the operators in SQL with examples. a) ANY b) IN c) EXISTS d) EXCEPT e) SOME **(5 Marks)**

A4) (a) Illustrate redundancy and the problems that it can cause? **(2.5 Marks)**

(b) Compare NoSQL & RDBMS to identify the better one. Explain why one should be using a NoSQL database instead of a relational database or vice versa? **(1.5+1 Marks)**

SECTION B

Max Marks: 15

B1) Consider the following schedules involving two Schedule S1 and S2

S1: r1(A), w1(A), r2(D), w4(A), r1(B), r4(C), w3(B), w2(E), w3(C);

S2: r1(A), r2(A), r1(B), r2(B), r3(A), r4(B), w1(A), w2(B);

Solve whether S1 and S2 are conflict serializable schedule or not using precedence graph? For each serializable schedule determine the equivalent serial schedule. **(5 Marks)**

B2) (a) Suppose that there is a database system that never fails. Analyze whether a recovery manager required for this system? **(2.5 Marks)**

(b) Explain the problems because of concurrent execution? **(2.5 Marks)**

B3) Suppose you are given a relation R=(P, Q, R, S, T) with the following functional dependencies. {RT→S, S→Q, R→P}

(a) Identify all candidate keys.

(b) Identify the best suited normal form that R satisfies (1NF, 2NF, 3NF or BCNF)

(c) If the relation is not in BCNF, decompose it until it becomes BCNF. At each step, identify a new relation, decompose and re-compute the keys and the normal forms they satisfy.

(2+1+2 Marks)

-ALL THE BEST-