Hi-Tech Institute of Engineering & Technology
DEPARTMENT OF MCA
(SEM-IV)EVEN Model Test Paper 2022-23
SET-A

Subject Code: KCA204   Subject Name: DBMS
Faculty Name: Prachi Vashist

Time: 3 hours   *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

1. Attempt all parts of the following   **(2*10=20)**

Q.No	Question	Marks	CO
a.	Explain the difference between physical and logical data independence with example.	2	1
b.	Differentiate between simple and composite attributes.	2	1
c.	What do you mean by domain integrity?	2	2
d.	Write Relational Algebra expression for following: Relation emp (eid, ename, city) Find the name of employes who either lives in Delhi or lives in Mumbai.	2	2
e.	Define multi-valued dependency?	2	3
f.	There is a table CUSTOMER(ID, Name,DOR). Write a SQL query to display all customer details. Note(Early date of registration must be displayed first.)	2	2
g.	What are the advantages of normalization.	2	3
h.	Write difference between BCNF Vs 3 NF.	2	3
i.	What is LOCK?	2	4
j.	What is concurrency control in DBMS?	2	5

2. Attempt any four questions: -   **10*3=30**

Q.No	Question	Marks	CO
a.	**"Data redundancy leads to data inconsistency".** Justify your answer.	10	1
b.	Explain cursor, sequence and procedure in SQL.	10	2
c.	What are multi-version schemes? Explain in detail	10	5
d.	What are the ACID properties of a Transaction?	10	4
e.	What is DDBMS? How data is stored in DDBMS? What are the various concurrency control techniques in DDBMS?	10	4

3. Attempt any ONE part of the following: **10*1 = 10**

Q.No	Question	Marks	CO
a.	What are advantages of Database over file processing system..	10	1
b.	What is database management system? Explain 3-schema architecture of DBMS.	10	1

4. Attempt any ONE part of the following: 10*1 = 10

Q.No	Question	Marks	CO
a.	A university registrar's office maintain the data about following entities a) Course including number,title,credits,syllabus; b) Course offering including course number, year, semester, section no. , instructors, timing &class room c) Students including id_no, name, program d) Instructor including idno, name, dept and title. Further the enrollment of students in course and grades awarded to students in each course they are enrolled. Construct an E-R diagram for the registrar office and reduce ER diagram into tables.	10	1
b.	Explain the concept of referential integrity constraint with suitable example.	10	2

5. Attempt any ONE part of the following: 10*1 = 10

Q.No	Question	Marks	CO
a.	What is MVD? Explain 4NF to resolve the issue of MVD.	10	3
b.	What do you mean by loss-less decomposition of a relation? Consider a relation R(A,B,C,D,E.F) with FD's AB$\rightarrow$C, C$\rightarrow$A, D$\rightarrow$E, F$\rightarrow$A, E $\rightarrow$ d IS the decomposition of R into R1(A,C,D), R2(B,C,D) and R3(E,F,D) lossless?	10	3

6. Attempt any ONE part of the following: 10*1 = 10

Q.No	Question	Marks	CO
a.	What is Deadlock? Discuss deadlock detection algorithm in database transaction processing.	10	4
b.	What is log file? What are the kinds of records stored in system log? What are transaction commit points and why they are important.	10	4

7. Attempt any ONE part of the following: 10*1 = 10

Q.No	Question	Marks	CO
a.	What do you mean by concurrency control? What is timestamp? Discuss time stamp protocol as concurrency control mechanism.	10	5
b.	How serial schedule is different from non serial schedule? What is seralizable schedule? A schedule is given as: S : r1(X), r2(X), w1(X), w2(X), w1(Y) Check whether schedule S is conflict serializable or not?	10	5