Sl. No.

B2.2-R4 : INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

DURATION : 03 Hours **MAXIMUM MARKS : 100**

OMR Sheet No. :						

Roll No. : | | | | | | |

Answer Sheet No. : | | | | | | |

Name of Candidate : _____ **; Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English language only.
- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.
- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.
- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the Answer Sheet for **PART ONE** to the Invigilator.
- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respect.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART ONE

(Answer ALL questions; each question carries ONE marks)

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10)

1.1 Privileges are assigned to users at once through

(A) DBA

(B) Table

(C) Role

(D) Grant

1.2 What do the schema objects comprise of ?

(A) Table

(B) Index

(C) Cluster

(D) All of the mentioned

1.3 Let R= (A, B, C, D, E, F) be a relation scheme with the following dependencies: C->F, E->A, EC->D, A->B. Which of the following is candidate key for R ?

(A) CD

(B) EC

(C) AE

(D) AC

1.4 Which of the following is a characteristic of the fourth DBMS generation ?

(A) Require a computer program to access the data

(B) Known as relational DBMS

(C) Can store and manipulate unconventional data

(D) Supports sequential search only

1.5 Database Object is :

(A) Table

(B) View

(C) Synonym

(D) All of the mentioned

1.6 In a schema with attributes A,B,C,D and E. The following set of FDs are given. Which of the following functional dependencies is not implied by the above set ?

A->B, A->C, CD->E, B->D, E->A

(A) CD –> AC

(B) BC –> CD

(C) BD –> CD

(D) AC –> BC

1.7 The following table shows a user information relation of an online shopping web site. What is the degree of the relation ?

UserId	Name	E mail	User Type	Acc Point
1	Nidhi	nidhi@org	Normal	250
2	Anand	anand@org	Star	27310
3	Dhruvi	dhruvi@org	Normal	20
4	Akash	akash@org	Normal	400
5	Ajay	ajay@org	Advanced	560
6	Shivam	shivam@org	Normal	130
7	Harsh	harsh@org	Advanced	1630
8	Harshita	harshita@org	Normal	560

(A) 3
(B) 4
(C) 5
(D) 6

1.8 Left attribute in functional dependency is_____.
(A) Dependent
(B) Generator
(C) Determent
(D) Determinant

1.9 Which normal form is considered enough for normal relational database design ?
(A) 2NF
(B) 5NF
(C) 4NF
(D) 3NF

1.10 Which of the following commands is used to delete all rows and free up space from a table ?
(A) TRUNCATE
(B) DROP
(C) DELETE
(D) ALTER

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" sheet supplied with the question paper, following instructions therein.

(1x10)

2.1 View is a Logical Object.

2.2 Create, Alter and Drop are example of Data Manipulation Language.

2.3 DBMS is a high-level language.

2.4 Meta data is information about data.

2.5 Foreign key is a set of one or more attributes taken collectively to uniquely identify a record.

2.6 Relational algebra is Procedural language.

2.7 Hierarchical schema establishes a top-to-bottom relationship among the items.

2.8 The log is a sequence of log records recording all the update activities in the database.

2.9 In the shadow paging scheme, a transaction that wants to update the database first creates a complete copy of the database.

2.10 The term tuple is used to refer to a row.

3. Match words and phrases in column X with the closest related meaning/word(s)/phrases in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein. **(1x10)**

	X		Y
3.1	Generalization	A	Foreign key
3.2	Transitive dependency	B	Data integrity
3.3	Lowest level of abstraction	C	Bottom to top
3.4	No. of levels in architecture of database	D	Physical
3.5	Weak entity	E	Top to bottom
3.6	Primary key of one table that appears in another table	F	One
3.7	Correctness and completeness of the data	G	Entity
3.8	Group By	H	3NF
3.9	Table can have maximum primary key	I	Two
3.10	Attribute of relationship	J	Having
		K	Descriptive attribute
		L	Three
		M	Child

4. Each statement below has a blank space to fit one of the word(s) of phrases in the list below. Enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. **(1x10)**

A.	Network	**B.**	Key	**C.**	Candidate keys
D.	Super key	**E.**	DBA	**F.**	On
G.	Distinct	**H.**	Referential	**I.**	Database
J.	DCL	**K.**	Null	**L.**	Using
M.	DML				

4.1 The values appearing in given attributes of any tuple in the referencing relation must likewise occur in specified attributes of at least one tuple in the referenced relation, according to _____ integrity.

4.2 _____ is a set of one or more attributes taken collectively to uniquely identify a record.

4.3 The oldest DB model is _____.

4.4 Using the _____ clause retains only one copy of such identical tuples.

4.5 The _____ condition allows a general predicate over the relations being joined.

4.6 Functional Dependencies are the types of constraints that are based on _____.

4.7 _____ helps in efficient retrieval, inserting and deleting of data

4.8 A person who has such central control over the system is called _____.

4.9 Minimal super-keys are called _____.

4.10 _____ is used to control user access in a database.

PART TWO

(Answer any FOUR questions)

5. (a) Explain BCNF (Boyce Codd Normal Form) with an example.

(b) Explain different types of relationships amongst tables in a DBMS.

(c) Explain role and responsibilities of DBA ? **(5+5+5)**

6. (a) What is meant by DBMS and what is its utility ?

(b) Explain aggregate functions with example.

(c) Explain control methods of Database Security. **(3+6+6)**

7. (a) What is data recovery ? Explain its need.

(b) Explain SQL operators in detail.

(c) Explain different types of Integrity Constraints. **(5+6+4)**

8. (a) What is Normalization ? List out all Data modification anomalies & explain 3rd normal form with example.

(b) Explain different types of keys in a database with example. **(8+7)**

9. (a) Explain different levels of data abstraction in a DBMS.
(b) Explain about concurrency control based on time-stamp ordering.
(c) Consider below tables & write SQL query for following questions.

Employee Info Table :

EmpID	EmpF name	EmpL name	Department	Project	Address	DOB	Gender
1	Sanjay	Mehra	HR	P1	Hyderabad (HYD)	01/12/1976	M
2	Ananya	Mishra	Admin	P2	Delhi (DEL)	02/05/1968	F
3	Rohan	Diwan	Account	P3	Mumbai (BOM)	01/01/1980	M
4	Sonia	Kulkarni	HR	P1	Hyderabad (HYD)	02/05/1992	F
5	Ankit	Kapoor	Admin	P2	Delhi(DEL)	03/07/1994	M

Employee Position Table :

Emp ID	EMP Position	Date of Joining	Salary
1	Manager	01/05/2022	500000
2	Executive	02/05/2022	75000
3	Manager	01/05/2022	90000
4	Lead	02/05/2022	85000
5	Executive	01/05/2022	300000

(1) Write a query to fetch the EmpF name from the Employee Info table in upper case and use the ALIAS name as Emp Name.

(2) Write a query to retrieve the first four characters of EmpL name from the Employee Info table.

(3) Write a query to find all the employees whose salary is between 50000 to 100000.

(4) Write a query to find the names of employees that begin with 'S'

(5) Write a query to fetch the number of employees working in the department 'HR'.

(6) Write a query to get the current date.

(7) Write a query to fetch all the records from the Employee Info table ordered by EmpL name in descending order and Department in the ascending order.

(8) Write a query to fetch details of all employees excluding the employees with first names, "Sanjay" and "Sonia" from the Employee Info table.

(3+4+8)

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SPACE FOR ROUGH WORK