EX (4)

# GURU NANAK INSTITUTE OF TECHNOLOGY
## An Autonomous Institute under MAKAUT
## 2022-2023
## RELATIONAL DATABASE MANAGEMENT SYSTEMS
## MCA20-102

**TIME ALLOTTED: 3Hours** **FULL MARKS:70**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as practicable*

### GROUP – A
### (Multiple Choice Type Questions)

Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

| | | Marks | CO No. |
|---|---|---|---|
| 1. i) | ..... work causes the current transaction to abort<br>a) consistency<br>b) view<br>c) rollback<br>d) commit | 1 | CO3 |
| ii) | In the following Query, which of the following can be placed in the Query's blank portion to display the salary from highest to lowest amount, and sorting the employs name alphabetically?<br>SELECT *<br>FROM instructor<br>ORDER BY salary ____, name ___;<br>a) Ascending, Descending<br>b) Asc, Desc<br>c) Desc, Asc<br>d) All of the above | 1 | CO5 |
| iii) | Which of the following provides the ability to query information from the database and insert tuples into, delete tuples from, and modify tuples in the database?<br>a) DML(Data Manipulation Language)<br>b) DDL(Data Definition Language)<br>c) Query<br>d) Relational Schema | 1 | CO5 |
| iv) | Rows of a relation are known as the _____.<br>a) Degree<br>b) Tuples<br>c) Entity<br>d) All of the above | 1 | CO5 |

v) Which of the following refers to the level of data abstraction that describes exactly how the data actually stored? 1 CO1
   a) Conceptual Level
   b) Physical Level
   c) File Level
   d) Logical Level

vi) Which of the following refers to the number of tuples in a relation? 1 CO2
   a) Entity
   b) Column
   c) Cardinality
   d) None of the above

vii) In which one of the following, the multiple lower entities are grouped (or combined) together to form a single higher-level entity? 1 CO2
   a) Specialization
   b) Generalization
   c) Aggregation
   d) None of the above

viii) In a relation database, every tuples divided into the fields are known as the_____. 1 CO2
   a) Queries
   b) Domains
   c) Relations
   d) All of the above

ix) Which of the following commands is used to save any transaction permanently into the database? 1 CO3
   a) Commit
   b) Rollback
   c) Savepoint
   d) None of the above

x) Which one of the following commands is used to restore the database to the last committed state? 1 CO3
   a) Savepoint
   b) Rollback
   c) Commit
   d) Both A & B

xi) Which of the following refers collection of the information stored in a database at a specific time? 1 CO1
   a) Independence
   b) Instance of the database
   c) Schema
   d) Data domain

| | | | |
|---|---|---|---|
| xii) | The architecture of a database can be viewed as the _____<br>a) One level<br>b) Two-level<br>c) Three-level<br>d) Four level | 1 | CO2 |

## GROUP – B
## (Short Answer Type Questions)

(Answer any *three* of the following) **3 x 5 = 15**

| | | Marks | CO No. |
|---|---|---|---|
| 2. | Create a procedure in PL/SQL that generates the Fibonacci series, and then invokes the procedure to get the output. | 5 | CO5 |
| 3. a. | Define Package in oracle. | 2 | CO5 |
| b. | What are the components of oracle package? | 1 | CO5 |
| c. | Write the syntax of package specification. | 2 | CO5 |
| 4. a. | Define Primary key with example. | 2 | CO3 |
| b. | Define foreign key with example. | 2 | CO3 |
| c. | What is Multi-valued attribute? | 1 | CO4 |
| 5. a. | Define function in PL/SQL. | 2 | CO5 |
| b. | Where do functions reside? | 1 | CO5 |
| c. | Differentiate between function and procedure. | 2 | CO5 |
| 6. a. | Define database schema and database instances. | 2 | CO1 |
| b. | Explain the Three Schema Architecture. | 3 | CO2 |

## GROUP – C
## (Long Answer Type Questions)

(Answer any *three* of the following) **3 x 15 = 45**

| | | Marks | CO No. |
|---|---|---|---|
| 7. a. | Define Alternate key. | 2 | CO3 |
| b. | Define Referential Integrity Constraint with proper example | 2 | CO3 |
| c. | Define full functional dependency with suitable example. | 2 | CO4 |
| d. | What do you mean by Trivial functional dependency and Non-trivial | 4 | CO4 |
| e. | functional dependency?<br>Given a relation schema R(A, B, C, D, E, I) and the set of functional dependency F={AB →E, E→C, BE→I, CI→D}. Show that AB→CD. | 5 | CO4 |
| 8. a. | State ACID properties. | 4 | CO2 |
| b. | Give transaction state diagram. | 3 | CO3 |
| c. | Define serial schedule and concurrent schedule. | 4 | CO2 |
| d. | State shadow copy scheme with implementation. | 4 | CO3 |

| | | | | |
|---|---|---|---|---|
| 9. | a. | What is need of normalization? | 3 | CO4 |
| | b. | Describe insertion anomalies, deletion anomalies and updation anomalies with proper example. | 6 | |
| | c. | Define 2NF. | 2 | CO4 |
| | d. | Compare between BCNF and 3NF. | 2 | CO4 |
| | e. | Consider a relation R ( A , B , C , D , E , F , G ) with the functional dependencies- F={ A → BC, BC → DE, D → F, CF → G}. Compute A+. | 2 | CO4 |
| 10. | a. | How many types of cursors are there in database? | 5 | CO5 |
| | b. | What are the cursors attributes? | 4 | CO5 |
| | c. | Define cursor FOR LOOP. What are the features of Cursor FOR LOOP | | |
| | d. | Write a PL/SQL block that calculate the total salary(Sum of sal) earned by the employees(Use Cursor For Loop). | 6 | CO5 |
| 11. | a. | Create a function that will return the sum of the expression 1*1 + 2*2 +3*3 + - - - - - - - - +N*N and then invoke the function. | 5 | CO5 |
| | b. | Write a PL/SQL block that checks whether a giver number is Armstrong or not. | 4 | CO5 |
| | c. | Create a database package for two functions:<br>Function1 will return the biggest number among three numbers.<br>Function2 will return the factorial of a positive number. | 6 | CO5 |