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**M. Sc. (Second Semester)
EXAMINATION, May - June, 2022**

COMPUTER SCIENCE

Paper- First

[Advance RDBMS (SQL Programming with Oracle)]

Time : Three Hours]

[Maximum Marks:100

[Minimum Pass Marks:40

Note : Attempt all sections as directed.

(Section - A)

(Objective/Multiple Choice Questions)

(1 mark each)

Note : Attempt all questions.

1. Database systems have functional components named as:
- (A) Query processor and storage manager
 - (B) Relationship manager and query processor
 - (C) Entity processor and query manager
 - (D) Information processor and storage manager

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2. Which is the false statement?

- (A) A transaction must completely succeed or completely fail
- (B) Data helps in making decisions
- (C) A set of application programs used to access, update and manage that data which form the data management system
- (D) A database is systematic compilation of records in a computer

3. Entity Relationship Model is not representation of data-base.

- (A) Sheet
- (B) Graphical
- (C) Pictorial
- (D) Diagram

4. Which of the following can be a multivalued attribute?

- (A) Phone_number
- (B) Name
- (C) Date_of_birth
- (D) All of the mentioned

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5. Relational Algebra is a ----- query language that takes two relations as input and produces another relation as an output of the query.
- (A) Fundamental
 - (B) Relational
 - (C) Procedural
 - (D) Structural
6. Which of the following is used to denote the selection operation in relational algebra?
- (A) Pi (Greek)
 - (B) Lambda (Greek)
 - (C) Sigma (Greek)
 - (D) Omega (Greek)
7. Which is not anomalies that occur when the database is not normalized
- (A) Deletion
 - (B) Update
 - (C) Select
 - (D) Insertion

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8. Which-one of the following statements about normal forms is FALSE?
- (A) BCNF is stricter than 3 NF
 - (B) Loss less, dependency- preserving decomposition into BCNF is always possible
 - (C) Lossless, dependency-preserving decomposition into 3 NF is always possible
 - (D) Any relation with two attributes is BCNF
9. The statement in SQL, which allows changing the definition of a table is
- (A) Create
 - (B) Select
 - (C) Update
 - (D) Alter
10. Which of the following statements contains an error?
- (A) `Select * from emp where empid =10003;`
 - (B) `Select empid from emp where empid = 10006;`
 - (C) `Select empid from emp;`
 - (D) `Select empid where empid = 1009 and lastname = 'GELLER';`

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11. To remove a relation from an SQL database, we use the ----- command.

- (A) Purge
- (B) Delete
- (C) Remove
- (D) Drop table

12. The database language that allows us to access data in a database is called :

- (A) DCL
- (B) TCL
- (C) DDL
- (D) DML

13. PL/SQL block has upto four different sections. How many section is mandatory?

- (A) TWO
- (B) ONE
- (C) THREE
- (D) FOUR

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14. All steps are using in an Explicit Cursor expect:

- (A) OPEN
- (B) EXCEPTION
- (C) DECLARE
- (D) FETCH

15. How many rows will be inserted in the messages table? In this program:

```
DECLARE  
v_start_sales NUMBER :=2;  
v_end_sales NUMBER:=100;  
BEGIN  
FOR i IN v_start_sales..v_end_sales LOOP  
INSERT INTO messages (msgid)  
VALUES v_start_sales;  
END LOOP;  
END;
```

- (A) 0
- (B) 99
- (C) 100
- (D) 1

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16. Which of the following is not true about PL/SQL decision making structures?
- (A) The IF-THEN-ELSIF statement allows you to choose between several alternatives.
 - (B) The IF statement associates a condition with a sequence of statement enclosed by the keywords THEN and END
 - (C) The IF statement also adds the keyword ELSE followed by an alternative sequence of statement
 - (D) PL/SQL have a CASE statement.
17. Which of the following true concerning ODBMS?
- (A) They have the ability to store complex data types on the web.
 - (B) They are overtaking RDBMS for all applications
 - (C) They are most useful for traditional, two-dimensional database table applications
 - (D) All of the above
18. Files are logically partitioned into storage unit of fixed length known as
- (A) Blocks
 - (B) Track
 - (C) Segment
 - (D) Sectors

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19. Which of the following statement about a distributed database is false?
- (A) No additional software is required to implement the distributed database.
 - (B) A distributed database is modular.
 - (C) Transactions in a distributed database are reliable.
 - (D) All transaction in a distributed database follow the ACID properties.
20. Which are small fixed portions that provide greater flexibility and it may require large tables or complex structures for their allocation?
- (A) Blocks
 - (B) Columns
 - (C) partitions
 - (D) Segments

Section - B

(Very Short Answer Type Questions)

Note: Attempt all questions. Answer using 2-3 sentences.

(2 marks each)

1. What is Schema and Instances?

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2. What is attributes?
3. What is inner join?
4. What is embedded query language?
5. What do you understand by view in SQL?
6. What is Nested queries?
7. What is purity function?
8. What is implicit cursor?
9. What is Indexed file?
10. What is OQL?

Section - C

(Short Answer Type Questions)

Note : Attempt all question. Answer precisely using <75 words. (3 marks each)

1. What is the Database language? Explain it
2. What is difference between weak and strong entity?
3. What is Domain relational calculus?
4. What do understand by multi valued dependency?
5. What is Application Programming Interface?
6. What do you mean by aggregate functions? Explain it

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7. Write the data types of PL/SQL.
8. What are advantages of packages?
9. What is Hashing Techniques?
10. What do you mean by Transactions of concurrency control? Explain it.

Section - D

(Long Answer Type Questions)

Note :Attempt all question. Answer precisely using 150 words. (6 marks each)

1. What data problems tend to arise in application development? What are the advantages of the DBMS approach to application development? Why is the Relational Database Approach better than earlier methods?

OR

Draw an E-R diagram for Hospital Management system of the following depicting primary key of each entity. Convert this diagram to a suitable relational schema. Construct the appropriate tables for the E-R diagram;

2. What do you mean by relational algebra? Explain the different types operation with example.

OR

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What is the importance of the Normalization? How many types of Normalization ? Explain 1NF, 2NF and 3NF with example.

3. Consider the relation database : Create the following table

Branch (Branch_name,street,customer_city)

Customer (Customer_name, account_no, customer-city)

Deposit (Branch-name, account_no, customer-name, balance)

Borrow (Branch_name, loan_no, customer-name, amount)

Give expression in SQL for the following:

- (i) Find all customers having an account of YYY branch
- (ii) List all customers having a loan at W W W branch in alphabetic order.
- (iii) Find the name of all the branches in deposit relation

OR

What is the use of the following in table? Explain with example.

- (i) HAVING (ii) GROUP BY (iii) INSERT
- (iv) UPDATE (v) ORDER BY (vi) DROP

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4. Write the PL/SQL program for print following series

1 3 5 7 9.....n

OR

Write the PL/SQL Program to find greatest of three numbers by using function.

5. What do you mean by Object Oriented Database? Explain the Object Oriented concepts.

OR

Explain the following :-

- (i) OODBMS Architecture
- (ii) Data Organization