140522

VCD- -F.Y.B.Sc.(CS) -SEM II - Database Systems-2½ HRS.-75 Marks

N.B. 1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustrations, in-depth answers and diagrams will be appreciated.

4) Mixing of sub-questions is not allowed.

5) Assume suitable data if necessary and state it clearly.

Q.1 Attempt All. **[40 Marks]**

a) Multiple Choice Questions.

1. A _____ represents association among two or more entities.

a) Entity   b) Attribute

c) Relationship   d) Metadata

2. Relational algebra is a _____.

a) Procedural language   b) Query language

c) Non procedural language   d) Programming language

3. The number of times an entity of an entity set participates in a relation in relationship set is known as_____.

a) Cardinality   b) Relationship

c) Tuple   c) Entity-Relation

4. In ER Diagram, Identifying Relationships are represented by_____.

a) Double Rectangle   b) Double Diamond

c) Diamond   d) Rectangle

5. _____ is a bottom-up approach.

a) Specialization   b) Join

c) Aggregation   d) Generalization

6. _____ generally refers to the suppression of details of data organisation and highlighting the essential features for improved understanding of data.

a) Data records   b) Abstraction

c) Database   d) Data model

7. _____ clause arranges records selected in certain order.

a) with order   b) order by

c) in order   d) sort by

8. Attributes that are not divisible in subparts of values are called _____ attributes.

a) Strong   b) Complex

c) Simple   d) Single

9. _____ normal form is based on the concept of transitive dependency.

a) BCNF   b) 2 NF

c) 3 NF   c) 1 NF

10. A database language used for defining the database structure and schema is called as_____.
a) DCL
b) DTL
c) DML
d) DDL

11. The _____ operation, denoted by −, allows us to find tuples that are in one relation but are not in another.
a) Union
b) Difference
c) Set-difference
d) Intersection

12. Which aggregate function is used to count number of rows in a table?
a) ALL ()
b) COUNT ()
c) SUM ()
d) TOTAL ()

13. Which operation is used to select rows from a relation?
a) SELECTION
b) JOIN
c) PROJECTION
d) UNION

14. _____return all rows from the right table and matching rows from the left table or null if no matching rows found in the left table.
a) LEFT JOIN
b) RIGHT JOIN
c) CROSS JOIN
d) OUTER JOIN

15. Which of the following is used to denote the selection operation in relational algebra?
a) Pi
b) Lambda
c) Sigma
d) Omega

16. What is the correct syntax for creating a view?
a) CREATE VIEW <VIEWNAME> AS TABLENAME;
b) CREATE <QUERY EXPRESSION> AS VIEW;
c) CREATE VIEW <VIEWNAME> AS QUERY EXPRESSION;
d) CREATE VIEW <QUERY EXPRESSION>;

17. _____function returns the current date and time at which the statement executed.
a) NOW
b) DATE
c) DAY
d) DATETIME

18. _____command is used to combine the records from one or more tables.
a) CROSS
b) PROJECT
c) JOIN
d) PRODUCT

19. _____ is a virtual table created by a query by joining one or more tables.
a) Subquery
b) Function
c) View
d) Procedure

20. _____ is to test whether a value is NULL or not
a) NON NULL
b) NULL
c) NOT NULL
d) IS NULL

Q.2 Attempt the following. (Solve any TWO)   **[10 Marks]**

a) What do you mean by Weak Entity Sets? Explain with example.

b) Write short note on Generalization.

c) Construct an E-R diagram for a Hotel management System. Customer books the room. Customer pay amount. Customer uses restaurant for breakfast, lunch and dinner. After checkout, customer leaves the room.
[Assume suitable data and mapping cardinalities exists.]

d) Explain Hierarchical Model in detail.

Q.3 Attempt the following. (Solve any TWO)   **[10 Marks]**

a) Explain the concept of Relational Algebra. List all basic operations supported by it. Explain any one operator with query example.

b) Consider following table. Underline fields are key fields.

   Book (bookid, title, author, publisher, category, price,)

Solve following queries using MySQL–

   i) Create above table with **bookid** as Primary Key.

   ii) Insert one record in it.

   iii) Find out Book titles starts with 'D'.

   iv) Add a column **'Year'** with data type INT in **Book** table.

   v) Find out Books with price in the range of Rs. 500 to Rs. 1000.

c) Explain any 5 Math functions used in MySQL with example.

d) What are Joins? List types of Joins. Explain any one of them.

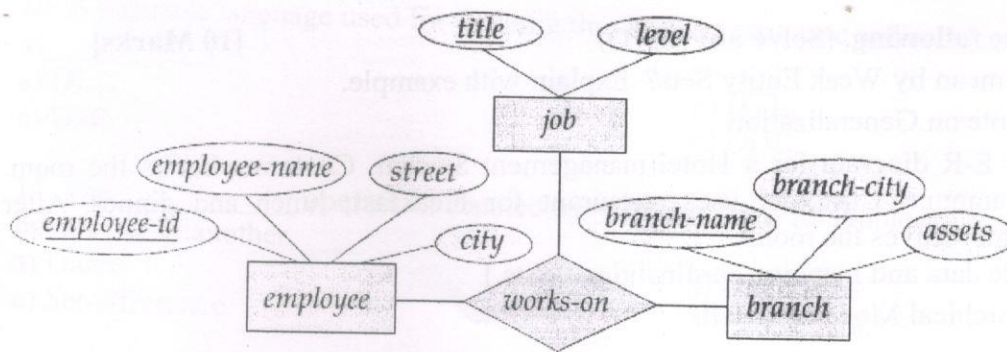**Q.4 Attempt the following. (Solve any TWO)**   **[10 Marks]**

a) What are views? How to create and update views?

b) What do you mean by Normalization? Explain Third Normal Form.

c) What do you mean by privileges with respect to databases? How to grant and revoke privileges?

d) Write short note on nested subqueries. Illustrate with example.

Q.5 Attempt the following. (Solve any ONE)   **[05 Marks]**

a) Convert below ER diagram into corresponding tables-

title level

job

employee-name street branch-city

employee-id branch-name assets

city

employee   works-on   branch

b) Explain all Aggregate Functions used in MySQL.
c) Explain the role of Data Base Administrator.

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