

Placement handbook of
DBMS & MYSQL

TOP 40 MCQ'S WITH ANSWERS



TOP 40 DBMS MCQ's WITH ANSWERS

1. The domain of an attribute in a relation is
 - a. The Relationship between the attributes
 - b. set of values that can uniquely identify each tuple of a relation
 - c. The set of all permitted values of that attribute
 - d. Property of an entity set

Answer: c) The set of all permitted values of that attribute

Explanation:

The domain of an attribute is the set of all values permitted for that attribute. It defines the range of values that an attribute in a relation can take. It is used to constrain the values of an attribute to ensure data integrity.

2. The logical structure or blueprint of the database is called
 - a. Index
 - b. Relational model
 - c. Database Schema
 - d. Database diagram

Answer: c) Database Schema

Explanation:

The database schema explains the construction and structure of the database. It contains the information about the tables, indexes, views, etc., in a database. So, the correct answer is Database Schema

3. The COLLATE operator in SQL is used to
 - a. change the data type of an attribute
 - b. sort the data in the table according to the specified collation
 - c. combine all the data in a table and store it in a file
 - d. sort the tuples in a relation in alphabetical order

Answer: b) sort the data in the table according to the specified collation

Explanation:

The set of rules used to compare the characters or strings in a database is called collation. The COLLATE clause in SQL is used to sort the strings according to the specified collation.

4. An enum field can take how many different values at the maximum?
 - a. 1024
 - b. 65536
 - c. 255
 - d. 65535

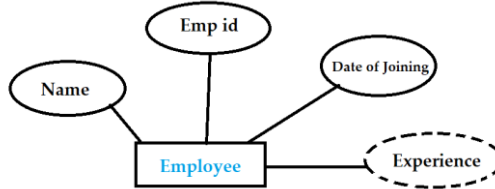
Answer: d) 65535

TOP 40 DBMS MCQ's WITH ANSWERS

Explanation:

The enum field is used to encode strings as numbers. An enum field can have 65535 different elements at the maximum.

5. Which of the following is an example of derived attribute?



- a. Name
- b. Emp Id
- c. Date of Joining
- d. Experience

Answer: d) Experience

Explanation: An attribute which is derived from another attribute is called a derived attribute. In the given ER diagram, the 'Experience' attribute can be derived from the 'Date of Joining' attribute. Hence, 'experience' is the derived attribute.

6. Which SQL statement is used to remove all the tuples from a relation?

- a. DROP
- b. REMOVE
- c. TRUNCATE
- d. All the above

Answer: c) TRUNCATE

Explanation:

DROP statement deletes the entire table irrevocably. TRUNCATE is a DDL statement that is used to delete all the tuples in the table, preserving the structure of the table.

7. Which of the following statements can be used to get a name which starts with 'D' and ends with 'i' using LIKE clause in SQL?

- a. LIKE 'd%i'
- b. LIKE '&d%i'
- c. LIKE '_d_i'
- d. LIKE '^d_i&'

Answer: a) LIKE 'd%i'

Explanation:

The SQL LIKE operator is used to search for a specific pattern in a string.

TOP 40 DBMS MCQ's WITH ANSWERS

% represents one or more characters.

_ represents a single character.

So, the correct answer is LIKE 'd%i'. Because, it represents the pattern which starts with 'd', has one or more characters in between and ends with 'i'.

8. A relation is in 3NF if
- Every non-prime attribute is functionally dependent on the primary key
 - Every prime attribute is functionally dependent on a non-prime attribute
 - Some non-prime attributes are functionally dependent on the primary key
 - If all the functional dependencies have a super key on their right side

Answer: a) Every non-prime attribute is functionally dependent on the primary key

Explanation:

The third normal form removes transitive dependency from the table. For a relation to satisfy 3NF, either **LHS** should be a **super key** or **RHS** should be **prime attribute** in every FD of the relation.

9. The data which provides data about the database is called
- Index
 - Metadata
 - Schema
 - File

Answer: b) metadata

Explanation:

Metadata contains the information about the data organization, files, tables etc., in the database. Data about the database is called Metadata. Hence, the correct answer is 'metadata'.

10. Two attributes are functionally dependent if and only if
- Together they constitute a composite key
 - The relation is in third normal form
 - Together they constitute a foreign key.
 - Value in one column determines the value of the other column

Answer: a) together they constitute a composite key

Explanation:

Certain functional dependencies can be proved to hold on the schema using the given set of functional dependencies. Hence, two attributes that are functionally dependent, form a composite key for the relation.

11. A relation that is designed from an E-R diagram will be in _____ normal form.
- First
 - Second

TOP 40 DBMS MCQ's WITH ANSWERS

- c. Third
- d. Fourth

Answer: c) Third

Explanation:

When a relation is designed from an E-R diagram, the relation will be in 3NF.

12. A surrogate key can be created using _____ property in MySQL?
- a. UNIQUE
 - b. AUTO_INCREMENT
 - c. NOT NULL
 - d. CREATE

Answer: b) AUTO_INCREMENT

Explanation:

When a relation does not have any set of attributes that can be used as a key, we include a surrogate key to uniquely identify each tuple of the relation. The surrogate keys are integers which increment themselves on the addition of a tuple to the database. Hence, we use AUTO_INCREMENT property for surrogate keys (the DBMS itself adds a surrogate key value for each tuple).

13. _____ and _____ clauses are used to apply filter condition to each row and group of rows in a relation respectively.
- a. WHERE and HAVING
 - b. HAVING and WHERE
 - c. WHERE and GROUP BY
 - d. GROUP BY and WHERE

Answer: a) WHERE and HAVING

Explanation:

The WHERE clause is used to filter out the required tuples of a relation. The HAVING clause is used to filter out the groups of tuples of a relation.

14. The Database Administrator (DBA) coordinates _____ and _____
- a. Database, DBMS
 - b. Application, database
 - c. Application, users
 - d. Database, users

Answer: d) Database, Users

Explanation:

The database administrator manages the data in the database. He decides who should be allowed

TOP 40 DBMS MCQ's WITH ANSWERS

access of the database. Thus, the database administrator (DBA) coordinates the database and its users.

15. A parent-child relationship between the tables in a database is created by combining
- Primary key and foreign key
 - Super key and foreign key
 - Primary key and candidate key
 - Foreign key and foreign key

Answer: a) primary key and foreign key

Explanation:

A parent-child relationship between tables can be established between the tables in a database by using the primary key and foreign key. The foreign key of the referencing relation refers to the primary key of the referenced relation. Thus, the referenced relation can be considered as the parent relation, and the referencing relation can be considered as the referenced relation.

16. Which of the following operations is used to combine the tuples of the relations containing the same number of attributes?
- Join
 - Union
 - Product
 - Combine

Answer: b) Union

Explanation:

- The 'join' operation is used to combine the attributes of the tables based on the given condition.
- The 'union' operation is used to combine the tuples of the relations containing same number of attributes.
- The 'product' operation is used to match every tuple of a relation to every tuple of the other relation.

17. Relational algebra is a _____ language. Relational calculus is a _____ language.
- Procedural, non-procedural
 - Non-procedural, procedural
 - Procedural, procedural
 - Non-procedural, non-procedural

Answer: a) Procedural, non-procedural

Explanation:

Relation algebra is a procedural language as it describes how the result should be obtained.

TOP 40 DBMS MCQ's WITH ANSWERS

Relation calculus is a non-procedural (or) descriptive language, because it describes what result must be obtained.

18. Given below is a bank transaction between two accounts x and y

Read(x); x=x-2500; write(x);

Read(y); y=y+2500; write(y);

Which of the following constraints is used to ensure that the sum of the amounts in x and y remains constant?

- a. Durability
- b. Integrity
- c. Consistency
- d. Atomicity

Answer: c) Consistency

Explanation:

Consistency of a database ensures that any database transaction changes only the affected data in allowed ways so that the sum of amounts in x and y does not change.

19. What are the ACID properties?

- a. Atomicity, Consistency, Isolation, Database
- b. Atomicity, Consistency, Integrity, Database
- c. Atomicity, Consistency, Isolation, Durability
- d. Atomicity, Consistency, Integrity, Durability

Answer: b) Atomicity, Consistency, Isolation, Database

Explanation:

The acid properties of database transactions are Atomicity, Consistency, Isolation, and Durability.

20. Two-phase locking protocol ensures

- a. Conflict serializability
- b. Freedom from deadlock
- c. Both a and b
- d. None of the above

Answer: a) conflict serializability

Explanation:

Time stamp ordering ensures both conflict serializability and deadlock avoidance. But, the two-phase locking protocol ensures only conflict serializability.

21. What are the four isolation levels in transaction control (in ascending order i.e. from the lowest level to the highest level)

- a. Repeatable read, read uncommitted, read committed, serializable

TOP 40 DBMS MCQ's WITH ANSWERS

- b. Read uncommitted, read committed, repeatable read, serializable
- c. Read uncommitted, read committed, serializable, repeatable read
- d. repeatable read, serializable, read uncommitted, read committed

Answer: b) Read uncommitted, read committed, repeatable read, serializable

Explanation:

The isolation level describes the locking strategy employed in the database system to improve consistency of data. The ascending order of isolation levels of transaction control is **Read uncommitted, read committed, repeatable read, serializable**. The highest level of isolation is the serializability.

22. A relation has 6 attributes a1, a2, a3, a4, a5 and a6. The candidate key is 'a2a3a4'. What is the possible number of super keys?
- a. 7
 - b. 8
 - c. 16
 - d. 15

Answer: 8

Explanation:

If a relation has 'n' attributes and the candidate key is 'a1a2a3' (3 attributes combined together as a candidate key), then the number of possible super keys are 2^{n-3} . Hence, the number of possible super keys is $2^{6-3}=2^3=8$

23. Which of the following is a sparse index?
- a. Clustered index
 - b. Secondary index for unsorted data
 - c. Multi-level index
 - d. Both a and c

Answer: d) Both a and c

Explanation:

Clustered indexes are created for groups of columns considered together. Hence, clustered index is a sparse index. Data is not sorted in secondary index. So, secondary index is a dense index. Multi-level index is the index of an index. So, it is always sparse.

24. Bitmap indexing is preferred when ____
- a. Cardinality>1
 - b. Cardinality=1
 - c. Cardinality<1
 - d. Cardinality<=1

TOP 40 DBMS MCQ's WITH ANSWERS

Answer: c) Cardinality<1

Explanation:

Bitmap indexes are more suitable for low-cardinality columns. Low cardinality means that the values of an attribute are less unique. Bit map index is used when a non-unique column is indexed. So, the correct answer is cardinality<1.

25. Which of the following is the correct domain relational calculus expression?

- a. $\{P(x_1, x_2, \dots, x_n) \mid \langle x_1, x_2, \dots, x_n \rangle\}$
- b. $\{\langle x_1, x_2, \dots, x_n \rangle \mid P(x_1, x_2, \dots, x_n)\}$
- c. $\{x_1, x_2, \dots, x_n \mid x_1, x_2, \dots, x_n\}$
- d. $\{x_1, x_2, \dots, x_n \mid \langle x_1, x_2, \dots, x_n \rangle\}$

Answer: b) $\{\langle x_1, x_2, \dots, x_n \rangle \mid P(x_1, x_2, \dots, x_n)\}$

Explanation:

x_1, x_2, \dots, x_n are the domain variables. P is the condition or the predicate calculus formula. Hence, the correct expression for domain relational calculus is $\{\langle x_1, x_2, \dots, x_n \rangle \mid P(x_1, x_2, \dots, x_n)\}$

26. Find the Name of the students who secured marks more than 80.

- a. $\{t.name \mid t \in \text{student} \wedge t[\text{marks}] > 80\}$
- b. $\{t \mid t \in \text{student} \vee t[\text{marks}] > 80\}$
- c. $\{t \mid t[\text{name}] = \text{student} \ \& \ t[\text{marks}] > 80\}$
- d. None of the above

Answer: a) $\{t.name \mid t \in \text{student} \wedge t[\text{marks}] > 80\}$

Explanation:

Option a) is the correct answer as it is in the tuple relational calculus format.

27. Consider the two relations given below:

Student (roll_no, name, address)

Course (roll_no, course_id, course_name)

The Student and the Course relations have 50 and 16 tuples respectively. What is the minimum and maximum number of tuples that are present in the natural join of the given relations?

- a. 0, 16
- b. 16, 50
- c. 16, 16
- d. 50, 66

Answer: c) 16, 16

Explanation:

TOP 40 DBMS MCQ's WITH ANSWERS

The natural join consists of the set of all combinations of tuples of both the relations that are equal on their common attribute.

As the two relations have a common attribute, the maximum number of tuples in their natural join will be equal to the number of tuples in the smaller table.

The minimum number of tuples in the natural join of the two relations is 16, because every tuple in Course will have a parent in the Student relation.

28. Consider the two relations x(a,b) and y(c,d).

```
SELECT DISTINCT a,b
FROM x,y
```

If the output of the above query should be as same as x, then

- a. x and y have no duplicates
- b. x has no duplicates and y is not empty
- c. x is not empty and y has no duplicates
- d. x and y have the same number of tuples

Answer: b) x has no duplicates and y is not empty

Explanation:

If no condition is given while joining two tables, then the output will be the Cartesian product of the two tables. For the result to be as same as x, x should not have any duplicates (DISTINCT keyword is used). y should not be empty, because if y is empty, the result will also be empty.

29. Which of the following SQL queries is used to obtain details of the first two top scorers in the class?

- a. SELECT *
FROM Students
ORDER BY Marks
LIMIT 2
- b. SELECT *
FROM Students
ORDER BY Marks DESC
LIMIT 2
- c. SELECT Name
FROM Students
ORDER BY Marks DESC
LIMIT 2, 2
- d. None of the above

**Answer: b) SELECT *
FROM Students
ORDER BY Marks DESC
LIMIT 2**

TOP 40 DBMS MCQ's WITH ANSWERS

Explanation:

The *ORDER BY* clause along with *DESC* keyword is used to sort the tuples in descending order. The *LIMIT 2* clause is used to select the first two tuples. Hence, the correct answer is option b)

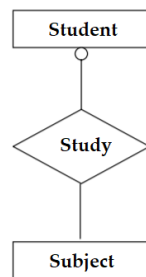
30. A student can take at most 7 courses in a year. The number of students allowed in a course in a year is not more than 120. The student – course relationship is
- 7:120
 - 120:7
 - N:120
 - 7:N

Answer: b) 120:7

Explanation:

There can be 120 students at the maximum in one course. Each student can take up to 7 courses. Hence, the student-course relationship is 120:7

31. What does the following E-R diagram depict?



- A student can study up to N subjects
- A student studies exactly N subjects
- A student may study up to N subjects. Some students may not study any subjects
- A student will study the subjects based on some condition.

Answer: c) A student may study up to N subjects. Some students may not study any subjects.

Explanation:

The E-R diagram tells us that a student may or may not study subjects. So, the correct answer is 'A student may study up to N subjects. Some students may not study any subjects'

32. A relation in 3NF can be converted to BCNF by the
- Removal of multi-valued dependencies
 - Removal of composite keys
 - dependent non-key attributes are put in a separate relation
 - dependent attributes of overlapping composite keys are put in a separate relation

Answer: d) dependent attributes of overlapping composite keys are put in a separate relation

TOP 40 DBMS MCQ's WITH ANSWERS

Explanation:

BCNF does not allow dependencies between the attributes of the candidate key. So, to convert a relation from 3NF to BCNF, dependent attributes of overlapping composite keys should be put in a separate relation.

33. The steps in designing a database are:
- Logical model → conceptual model → physical model
 - Logical model → physical model → conceptual model
 - Physical model → conceptual model → logical model
 - Conceptual model → logical model → physical model

Answer: d) Conceptual model → logical model → physical model

Explanation:

The conceptual design is done first in the database modeling. After conceptual design, the logical design which involves designing of tables is done. At last, the physical design is done.

34. Find the 3NF relations of the given relation
Student (rollno, name, phone, year, course id, course max)

- student (rollno, name, year, phone)
course (course id, course max)
- student (rollno, name, year, phone)
students (rollno, course id)
course (course id, course max)
- student (rollno , name, phone)
year (rollno, year)
course (course id, course max)
- student (rollno, name, phone)
course (course id, course max, year)

**Answer: b) student (rollno, name, year, phone)
students (rollno, course id)
course (course id, course max)**

Explanation:

A relation can be converted to 3NF by moving all the items which are involved in transitive dependency. Hence, the correct answer is option b)

35. Determine the output of the following query:
- ```
SELECT count(*)
FROM (
 (SELECT Student, Tutor
 FROM Class) AS S
```

## TOP 40 DBMS MCQ's WITH ANSWERS

NATURAL JOIN (SELECT Tutor, Marks  
FROM Class) AS T);

Class

| Student | Tutor | Marks |
|---------|-------|-------|
| Pinky   | Helen | 99    |
| Jaya    | Helen | 60    |
| Dhivya  | Sri   | 85    |

- a. 5
- b. 4
- c. 3
- d. 2

Answer: a) 5

Explanation:

| Tutor   | Marks |
|---------|-------|
| Helen   | 99    |
| Helen   | 60    |
| Sri     | 85    |
| Student | Tutor |
| Pinky   | Helen |
| Jaya    | Helen |
| Dhivya  | Sri   |

Final output:

| Student | Tutor | Marks |
|---------|-------|-------|
| Pinky   | Helen | 99    |
| Pinky   | Helen | 60    |
| Jaya    | Helen | 99    |
| Jaya    | Helen | 60    |
| Dhivya  | Sri   | 85    |

As Helen appears two times in T, it appears 4 times in the final output.

As the final output has 5 entries, the answer is 5.

36. The given SQL statement performs which type of join?

## TOP 40 DBMS MCQ's WITH ANSWERS

*SELECT Name, Amount, Order\_id  
FROM Customer, Order*

- a. Cartesian join
- b. Outer join
- c. Inner join
- d. Natural join

**Answer: a) Cartesian join**

**Explanation:**

*If no join is mentioned in the SQL query, Cartesian product is performed. Cartesian join returns the product of all the tuples in Customer and Order relations.*

**37.** What are the operations done by the SQL query given below?

*SELECT First Name, Last Name, Department\_name  
FROM Emp e, Department d  
WHERE e.dept\_id = d.dept\_id*

- a. Selection, intersection, join
- b. Selection, projection, join
- c. Difference, projection, join
- d. Intersection, projection, join

**Answer: b) selection, projection, join**

**Explanation:**

In the given SQL query, selection, projection and join operations are performed.

Refer the tables given below and answer the following questions.

*Users*

| <b>Id</b> | <b>Name</b> | <b>Gender</b> | <b>Age</b> | <b>Occupation id</b> | <b>City id</b> |
|-----------|-------------|---------------|------------|----------------------|----------------|
| 1         | Sara        | Female        | 30         | 4                    | 4              |
| 2         | Shree       | Female        | 50         | 1                    | 1              |
| 3         | Alan        | Male          | 25         | 2                    | 2              |
| 4         | Veda        | Female        | 33         | 1                    | 1              |

| <b>City id</b>       | <b>City Name</b>       |
|----------------------|------------------------|
| 1                    | Chennai                |
| 2                    | Bangalore              |
| 3                    | Hyderabad              |
| 4                    | Pune                   |
| <b>Occupation id</b> | <b>Occupation Name</b> |
| 1                    | Engineer               |
| 2                    | Lawyer                 |

## TOP 40 DBMS MCQ's WITH ANSWERS

|   |         |
|---|---------|
| 3 | Doctor  |
| 4 | Teacher |

38. How many tuples will be there in the output of the following relational expression?

$$P_{Name, Gender}(R_{CityName='Chennai'}(Users \bowtie City))$$

- a. 4
- b. 3
- c. 1
- d. 2

**Answer: d) 2**

**Explanation:**

The output of the given relational expression is

| Name  | Gender |
|-------|--------|
| Shree | Female |
| Veda  | Female |

The output contains 2 tuples.

39. Write the SQL statement for the given relational expression.

$$R_{Users.Occupation\ id = Occupation.occupation\ id}(Users \times Occupation)$$

- a. SELECT \*FROM User u, Occupation o
- b. SELECT \*FROM User u, Occupation o  
WHERE u.Occupation id = o.occupation id;
- c. SELECT \*FROM User u, occupation o  
WHERE u.Occupation id = 1;
- d. None of the above

**Answer: b) SELECT \* FROM User u, Occupation o  
WHERE u.Occupation id = o.occupation id;**

**Explanation:**

The given expression performs join operation with the occupation id as the common attribute. Hence, Option b) is the correct answer.

40. Select the unary operation from the following.

- a. Projection
- b. Selection
- c. Generalized selection
- d. Join

## TOP 40 DBMS MCQ's WITH ANSWERS

**Answer: c) Generalized selection**

**Explanation:**

*As the Generalized selection takes only one argument, it is a unary operator.*

**41.** Which of the following is an example of self-join?

- a. SELECT column  
FROM table1 t, table1 s  
WHERE condition
- b. SELECT column  
FROM table1 t, table2 t  
WHERE condition
- c. SELECT column  
FROM table1 t  
WHERE condition
- d. None of the above

**Answer: a) SELECT column  
FROM table1 t, table1 s  
WHERE condition**

**Explanation:**

*A table joining with itself is called self-join. In option a) the table1 is joined with table1, so it is an example of self-join.*

**42.** Which SQL statement is used to change the definition of a table?

- a) SELECT
- b) UPDATE
- c) ALTER
- d) CREATE

**Answer: c) ALTER**

**Explanation:**

*The definition of the table can be changed using DML statements. ALTER is the DML statement which can be used to add, delete and modify the columns of a table. It can also be used to add or drop certain constraints on a table. Hence, the SQL statement used to change the definition of a table is ALTER.*

**43.** SQL views are also called

- a. Actual tables
- b. Virtual tables
- c. Simple tables
- d. Complex tables



## TOP 40 DBMS MCQ's WITH ANSWERS

**Answer: b) Virtual Tables**

**Explanation:**

*Views do not contain the entire data available in the relation. It contains only the required information which are accessible by the users. Hence, in SQL Views are called Virtual Tables.*

44. Which of the following operators is used to check the existence of any record in a subquery?
- a. EXISTS
  - b. IS NULL
  - c. NOT NULL
  - d. NOT

**Answer: a) EXISTS**

**Explanation:**

*The EXISTS operator is used to test the existence of records in a subquery. IS NULL operator is used to look for the NULL values in the attributes. NOT is used to negate the output.*

