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# Database Questions and Answers – Relational Algebra

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Relational Algebra”.

1. Relational Algebra is a _____ query language that takes two relations as input and produces another relation as an output of the query.
a) Relational
b) Structural
c) Procedural
d) Fundamental

View Answer

Answer: c
Explanation: This language has fundamental and other operations which are used on relations.

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2. Which of the following is a fundamental operation in relational algebra?
a) Set intersection
b) Natural join
c) Assignment
d) None of the mentioned

View Answer

Answer: d
Explanation: The fundamental operations are select, project, union, set difference, Cartesian product, and rename.

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

View Answer

Answer: b
Explanation: The select operation selects tuples that satisfy a given predicate.

4. For select operation the _____ appear in the subscript and the _____ argument appears in the paranthesis after the sigma.
a) Predicates, relation
b) Relation, Predicates
c) Operation, Predicates
d) Relation, Operation

View Answer

Answer: a
Explanation: None.

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

View Answer

Answer: b
Explanation: The expression r − s produces a relation containing those tuples in r but not in s.

6. Which is a unary operation:
a) Selection operation
b) Primitive operation
c) Projection operation
d) Generalized selection

View Answer

Answer: d
Explanation: Generalization Selection takes only one argument for operation.

7. Which is a join condition contains an equality operator:
a) Equijoins
b) Cartesian
c) Natural
d) Left

View Answer

Answer: a
Explanation: None.

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8. In precedence of set operators, the expression is evaluated from
a) Left to left
b) Left to right
c) Right to left
d) From user specification

View Answer

Answer: b
Explanation: The expression is evaluated from left to right according to the precedence.

9. Which of the following is not outer join?
a) Left outer join
b) Right outer join
c) Full outer join

d) All of the mentioned

View Answer

Answer: d
Explanation: The FULL OUTER JOIN keyword combines the result of both LEFT and RIGHT joins.

10. The assignment operator is denoted by
a) ->
b) <-
c) =
d) ==

View Answer

Answer: b
Explanation: The result of the expression to the right of the ← is assigned to the relation variable on the left of the ←.

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# Database Questions and Answers – Tuple Relational Calculus and Domain Relational Calculus

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This set of Database test focuses on “Tuple Relational Calculus and Domain Relational Calculus”.

1. Find the ID, name, dept name, salary for instructors whose salary is greater than $80,000 .
a) {t | t ε instructor ∧ t[salary] > 80000}
b) ∃ t ∈ r (Q(t))
c) {t | ∃ s ε instructor (t[ID] = s[ID]∧ s[salary] > 80000)}
d) None of the mentioned

View Answer

Answer: a
Explanation: This expression is in tuple relational format.

2. A query in the tuple relational calculus is expressed as:
a) {t | P() | t}
b) {P(t) | t }
c) {t | P(t)}
d) All of the mentioned

View Answer

Answer: c
Explanation: The tuple relational calculus, is a nonprocedural query language. It describes the desired information without giving a specific procedure for obtaining that information.

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3.

```
{t | ∃ s ∈ instructor (t[name] = s[name]
∧ ∃ u ∈ department (u[dept name] = s[dept name]
∧ u[building] = “Watson”))}
```

Which of the following best describes the query?
a) Finds the names of all instructors whose department is in the Watson building
b) Finds the names of all department is in the Watson building
c) Finds the name of the dapartment whose instructor and building is Watson
d) Returns the building name of all the departments

View Answer

Answer: a
Explanation: This query has two “there exists” clauses in our tuple-relational-calculus expression, connected by and (∧).

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4. Which of the following symbol is used in the place of except?
a) ^
b) V
c) ¬
d) ~

View Answer

Answer: c
Explanation: The query ¬P negates the value of P.

5. “Find all students who have taken all courses offered in the Biology department.” The expressions that matches this sentence is :
a) ∃ t ε r (Q(t))
b) ∀ t ε r (Q(t))
c) ¬ t ε r (Q(t))
d) ~ t ε r (Q(t))

View Answer

Answer: b
Explanation: ∀ is used denote “for all” in SQL.

6. Which of the following is the comparison operator in tuple relational calculus
a) ⇒
b) =
c) ε
d) All of the mentioned

View Answer

Answer: b
Explanation: The comparison operators are (<, ≤, =, =, >, ≥).

7. An expression in the domain relational calculus is of the form
a) {P(x1, x2, . . . , xn) | < x1, x2, . . . , xn > }
b) {x1, x2, . . . , xn | < x1, x2, . . . , xn > }
c) { x1, x2, . . . , xn | x1, x2, . . . , xn}
d) {< x1, x2, . . . , xn > | P(x1, x2, . . . , xn)}

View Answer

Answer: d
Explanation: Here x1, x2, . . . , xn represent domain variables. P represents a formula composed of atoms, as was the case in the tuple relational calculus.

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8. Find the names of all instructors in the Physics department together with the course id of all courses they teach:
a)

{< c > | ∃ s (< c, a, s, y, b, r, t >ε section
∧s = “Fall” ∧ y = “2009”
∨∃u (< c, a, s, y, b, r, t >ε section
∧s = “Spring” ∧ y = “2010”

b)

{< n, c > | ∃ i, a (< i, c, a, s, y > ε teaches
∧ ∃ d, s (< i, n, d, s > ε instructor ∧ d = “Physics”))}

c)

{< n > | ∃ i, d, s (< i, n, d, s > ε instructor ∧ s > 80000)}

d)

{< i, n, d, s > | < i, n, d, s > ε instructor ∧ s > 80000}

View Answer

Answer: b
Explanation: None.

9. In domain relaional calculus “there exist” can be expressed as
a) (P1(x))
b) (P1(x)) Ǝ x
c) V x (P1(x))
d) Ǝ x (P1(x))

View Answer

Answer: d
Explanation:Ǝ is used to denote “some” values in relational calculus.

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10. A set of possible data values is called
a) Attribute
b) Degree
c) Tuple
d) Domain

View Answer

Answer: d
Explanation: None.

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# Database Questions and Answers – Modification of Database

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Modification of Database”.

1. A Delete command operates on _____ relation.
a) One
b) Two
c) Several
d) Null

View Answer

Answer: a
Explanation: Delete can delete from only one table at a time.

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2.

Delete from r where P;

The above command
a) Deletes a particular tuple from the relation
b) Deletes the relation
c) Clears all entries from the relation
d) All of the mentioned

View Answer

Answer: a
Explanation: Here P gives the condition for deleting specific rows.

3. Which one of the following deletes all the entries but keeps the structure of the relation.
a) Delete from r where P;
b) Delete from instructor where dept name= 'Finance';
c) Delete from instructor where salary between 13000 and 15000;
d) Delete from instructor;

View Answer

Answer: d
Explanation: Absence of condition deletes all rows.

4. Which of the following is used to insert a tuple from another relation?
a)

```
INSERT INTO course (course id, title, dept name, credits)
VALUES (’CS-437’, ’DATABASE Systems’, ’Comp. Sci.’, 4);
```

b)

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```
INSERT INTO instructor
SELECT ID, name, dept name, 18000
FROM student
WHERE dept name = ’Music’ AND tot cred > 144;
```

c)

```
INSERT INTO course VALUES (’CS-437’, ’DATABASE Systems’, ’Comp. Sci.’, 4);
```

d) Not possible

View Answer

Answer: b
Explanation: Using select statement in insert will include rows which are the result of the selection.

5. Which of the following deletes all tuples in the instructor relation for those instructors associa with a department located in the Watson building which is in department relation.
a)

```
DELETE FROM instructor
WHERE dept_name IN 'Watson';
```

b)

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```
DELETE FROM department
WHERE building='Watson';
```

c)

```
DELETE FROM instructor
WHERE dept_name IN (SELECT dept name
                    FROM department
                    WHERE building = 'Watson');
```

d) None of the mentioned

View Answer

Answer: c
Explanation: The query must include building=watson condition to filter the tuples.

6.

```
UPDATE instructor
   _____ salary= salary * 1.05;
```

Fill in with correct keyword to update the instructor relation.
a) Where
b) Set
c) In
d) Select

View Answer

Answer: b
Explanation: Set is used to update the particular value.

7. _____ are useful in SQL update statements, where they can be used in the set clause.
a) Multiple queries
b) Sub queries
c) Update
d) Scalar subqueries

View Answer

Answer: d
Explanation: None.

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8. The problem of ordering the update in multiple updates is avoided using
a) Set
b) Where
c) Case

d) When

View Answer

Answer: c
Explanation: The case statements can add the order of updating tuples.

9. Which of the following is the correct format for case statements.
a)

```
CASE
WHEN pred1 ... result1
WHEN pred2 ... result2
. . .
WHEN predn ... resultn
ELSE result0
END
```

b)

```
CASE
WHEN pred1 THEN result1
WHEN pred2 THEN result2
. . .
WHEN predn THEN resultn
ELSE result0
END
```

c)

```
CASE
WHEN pred1 THEN result1
WHEN pred2 THEN result2
. . .
WHEN predn THEN resultn
ELSE result0
```

d) All of the mentioned

View Answer

Answer: b
Explanation: None.

10. Which of the following relation updates all instructors with salary over $100,000 receive a 3 percent raise, whereas all others receive a 5 percent raise.

a)

```
UPDATE instructor
SET salary = salary * 1.03
WHERE salary > 100000;
UPDATE instructor
SET salary = salary * 1.05
WHERE salary <= 100000;
```

b)

```
UPDATE instructor
SET salary = salary * 1.05
WHERE salary < (SELECT avg (salary)
FROM instructor);
```

c)

```
UPDATE instructor
SET salary = CASE
WHEN salary <= 100000 THEN salary * 1.03
ELSE salary * 1.05
END
```

d) None of the mentioned

View Answer

Answer: a
Explanation: The order of the two update statements is important. If we changed the order of the two statements, an instructor with a salary just under $100,000 would receive an over 8 percent raise. SQL provides a case construct that we can use to perform both the updates with a single update statement, avoiding the problem with the order of updates.

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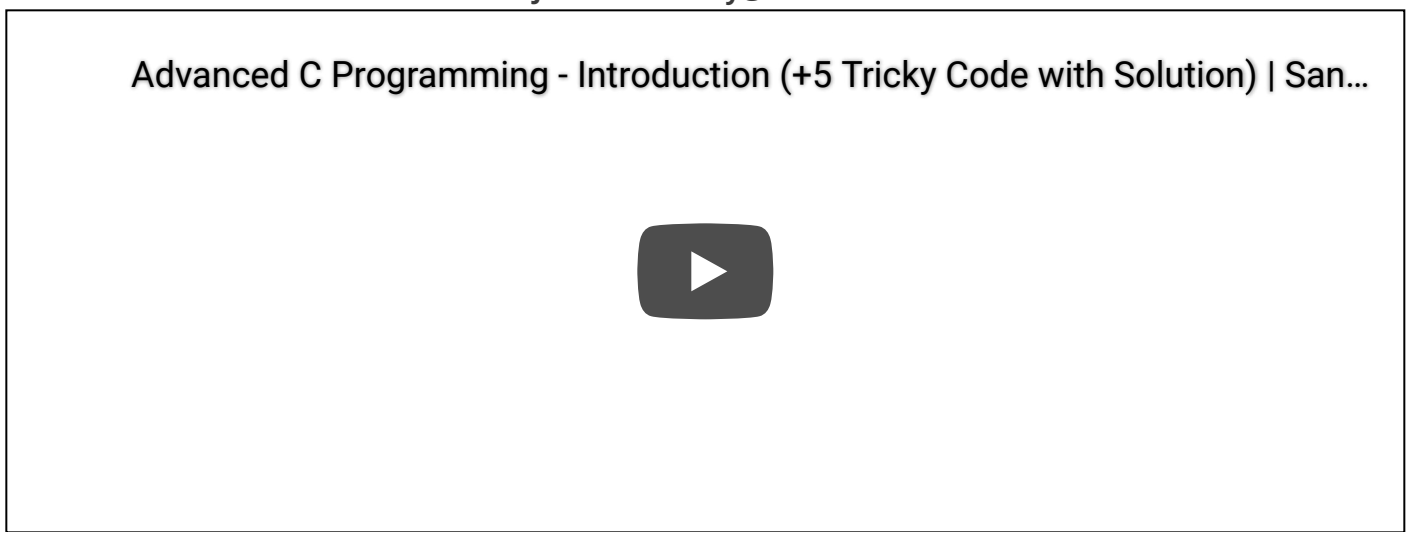


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# Database Questions and Answers – Views

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Views”.

1. Which of the following creates a virtual relation for storing the query?
a) Function
b) View
c) Procedure
d) None of the mentioned

View Answer

Answer: b
Explanation: Any such relation that is not part of the logical model, but is made visible to a user as a virtual relation, is called a view.

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2. Which of the following is the syntax for views where v is view name?
a) Create view v as “query name”;
b) Create “query expression” as view;
c) Create view v as “query expression”;
d) Create view “query expression”;

View Answer

Answer: c
Explanation: <query expression> is any legal query expression. The view name is represented by v.

3.

```
SELECT course_id
FROM physics_fall_2009
WHERE building= ’Watson’;
```

Here the tuples are selected from the view.Which one denotes the view.
a) Course_id
b) Watson
c) Building
d) physics_fall_2009

View Answer

Answer: c
Explanation: View names may appear in a query any place where a relation name may appear.

4. Materialised views make sure that
a) View definition is kept stable
b) View definition is kept up-to-date

c) View definition is verified for error
d) View is deleted after specified time

View Answer

Answer: b
Explanation: None.

5. Updating the value of the view
a) Will affect the relation from which it is defined
b) Will not change the view definition
c) Will not affect the relation from which it is defined
d) Cannot determine

View Answer

Answer: a
Explanation: None.

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6. SQL view is said to be updatable (that is, inserts, updates or deletes can be applied on the view) if which of the following conditions are satisfied by the query defining the view?
a) The from clause has only one database relation
b) The query does not have a group by or having clause
c) The select clause contains only attribute names of the relation and does not have any expressions, aggregates, or distinct specification
d) All of the mentioned

View Answer

Answer: d
Explanation: All of the conditions must be satisfied to update the view in sql.

7. Which of the following is used at the end of the view to reject the tuples which do not satisfy the condition in where clause?
a) With
b) Check
c) With check
d) All of the mentioned

View Answer

Answer: c
Explanation: Views can be defined with a with check option clause at the end of the view definition; then, if a tuple inserted into the view does not satisfy the view's where clause condition, the insertion is rejected by the database system.

8. Consider the two relations instructor and department
Instructor:

| ID | Name | Dept_name | Salary |
|---|---|---|---|
| 1001 | Ted | Finance | 10000 |
| 1002 | Bob | Music | 20000 |
| 1003 | Ron | Physics | 50000 |

Department:

| Dept_name | Building | Budget |
|---|---|---|
| Biology | Watson | 40000 |
| Chemistry | Painter | 30000 |
| Music | Taylor | 50000 |

Which of the following is used to create view for these relations together?
a)

```
CREATE VIEW instructor_info AS
SELECT ID, name, building
```

```
FROM instructor, department
WHERE instructor.dept name= department.dept name;
```

b)

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```
CREATE VIEW instructor_info
SELECT ID, name, building
FROM instructor, department;
```

c)

```
CREATE VIEW instructor_info AS
SELECT ID, name, building
FROM instructor;
```

d)

```
CREATE VIEW instructor_info AS
SELECT ID, name, building
FROM department;
```

View Answer

Answer: a

Explanation: None.

9. For the view Create view instructor_info as

```
SELECT ID, name, building
FROM instructor, department
WHERE instructor.dept name= department.dept name;
```

If we insert tuple into the view as insert into instructor info values (’69987’, ’White’, ’Taylor’);
What will be the values of the other attributes in instructor and department relations?
a) Default value
b) Null
c) Error statement
d) 0

View Answer

Answer: b
Explanation: The values take null if there is no constraint in the attribute else it is an Erroneous statement.

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10.

```
CREATE VIEW faculty AS
    SELECT ID, name, dept name
    FROM instructor;
```

Find the error in this query.
a) Instructor
b) Select

c) View ...as
d) None of the mentioned

View Answer

Answer: d
Explanation: Syntax is – create view v as <query expression>;.

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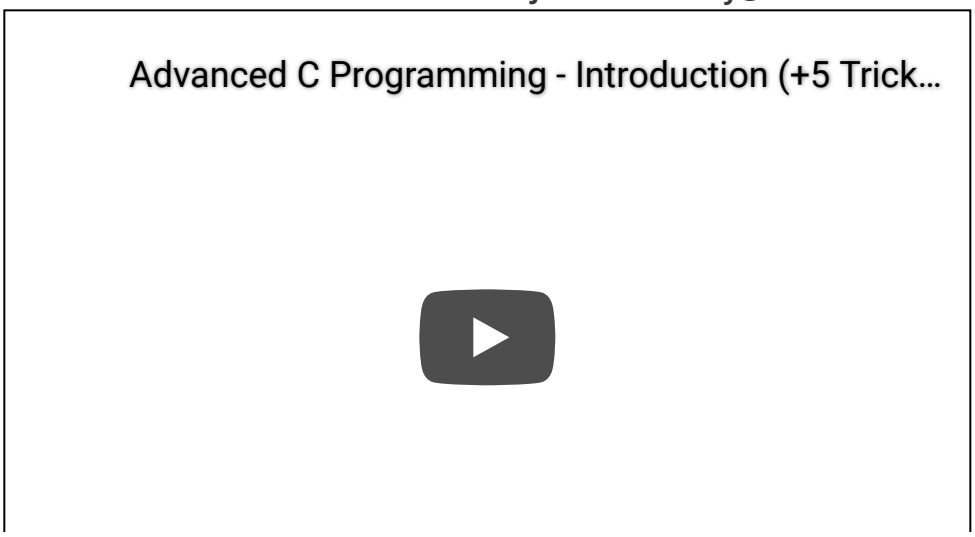


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# Database Questions and Answers – Extended E-R Features

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Extended E-R Features”.

1. The entity set person is classified as student and employee. This process is called _____
a) Generalization
b) Specialization
c) Inheritance
d) Constraint generalization

View Answer

Answer: b
Explanation: The process of designating subgroupings within an entity set is called specializatio

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2. Which relationship is used to represent a specialization entity?
a) ISA
b) AIS
c) ONIS
d) WHOIS

View Answer

Answer: a
Explanation: In terms of an E-R diagram, specialization is depicted by a hollow arrow-head pointing from the specialized entity to the other entity.

3. The refinement from an initial entity set into successive levels of entity subgroupings represents a _____ design process in which distinctions are made explicit.
a) Hierarchy
b) Bottom-up
c) Top-down
d) Radical

View Answer

Answer: c
Explanation: The design process may also proceed in a bottom-up manner, in which multiple entity sets are synthesized into a higher-level entity set on the basis of common features.

4. There are similarities between the instructor entity set and the secretary entity set in the se that they have several attributes that are conceptually the same across the two entity sets: nam the identifier, name, and salary attributes. This process is called
a) Commonality
b) Specialization

c) Generalization
d) Similarity

View Answer

Answer: c
Explanation: Generalization is used to emphasize the similarities among lower-level entity sets and to hide the differences.

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5. If an entity set is a lower-level entity set in more than one ISA relationship, then the entity set has
a) Hierarchy
b) Multilevel inheritance
c) Single inheritance
d) Multiple inheritance

View Answer

Answer: d
Explanation: The attributes of the higher-level entity sets are said to be inherited by the lower-level entity sets.

6. A _____ constraint requires that an entity belong to no more than one lower-level entity set.
a) Disjointness
b) Uniqueness
c) Special

d) Relational

View Answer

Answer: a
Explanation: For example, student entity can satisfy only one condition for the student type attribute; an entity can be either a graduate student or an undergraduate student, but cannot be both.

7. Consider the employee work-team example, and assume that certain employees participate in more than one work team. A given employee may therefore appear in more than one of the team entity sets that are lower level entity sets of employee. Thus, the generalization is _____
a) Overlapping
b) Disjointness
c) Uniqueness
d) Relational

View Answer

Answer: a
Explanation: In overlapping generalizations, the same entity may belong to more than one lower-level entity set within a single generalization.

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8. The completeness constraint may be one of the following: Total generalization or specializati..., Partial generalization or specialization. Which is the default?
a) Total
b) Partial

c) Should be specified
d) Cannot be determined

View Answer

Answer: b
Explanation: Partial generalization or specialization – Some higher-level entities may not belong to any lower-level entity set.

9. Functional dependencies are a generalization of
a) Key dependencies
b) Relation dependencies
c) Database dependencies
d) None of the mentioned

View Answer

Answer: a
Explanation: The subclasses are combined to form the superclass.

10. Which of the following is another name for a weak entity?
a) Child
b) Owner
c) Dominant
d) All of the mentioned

View Answer

Answer: a
Explanation: A parent may be called as a strong entity.

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# Database Questions & Answers – Normal Forms

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Normal Forms”.

1. In the _____ normal form, a composite attribute is converted to individual attributes.
a) First
b) Second
c) Third
d) Fourth

View Answer

Answer: a
Explanation: The first normal form is used to eliminate the duplicate information.

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2. A table on the many side of a one to many or many to many relationship must:
a) Be in Second Normal Form (2NF)
b) Be in Third Normal Form (3NF)
c) Have a single attribute key
d) Have a composite key

View Answer

Answer: d
Explanation: The relation in second normal form is also in first normal form and no partial dependencies on any column in primary key.

3. Tables in second normal form (2NF):
a) Eliminate all hidden dependencies
b) Eliminate the possibility of a insertion anomalies
c) Have a composite key
d) Have all non key fields depend on the whole primary key

View Answer

Answer: a
Explanation: The relation in second normal form is also in first normal form and no partial dependencies on any column in primary key.

4. Which-one ofthe following statements about normal forms is FALSE?
a) BCNF is stricter than 3 NF
b) Lossless, dependency -preserving decomposition into 3 NF is always possible
c) Loss less, dependency – preserving decomposition into BCNF is always possible
d) Any relation with two attributes is BCNF

View Answer

Answer: c
Explanation: We say that the decomposition is a lossless decomposition if there is no loss of information by replacing r (R) with two relation schemas r1(R1) andr2(R2).

5. Functional Dependencies are the types of constraints that are based on_____
a) Key
b) Key revisited
c) Superset key
d) None of the mentioned

View Answer

Answer: a
Explanation: Key is the basic element needed for the constraints.

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6. Which is a bottom-up approach to database design that design by examining the relationship between attributes:
a) Functional dependency
b) Database modeling
c) Normalization
d) Decomposition

View Answer

Answer: c
Explanation: Normalisation is the process of removing redundancy and unwanted data.

7. Which forms simplifies and ensures that there are minimal data aggregates and repetitive groups:
a) 1NF
b) 2NF
c) 3NF
d) All of the mentioned

View Answer

Answer: c
Explanation: The first normal form is used to eliminate the duplicate information.

8. Which forms has a relation that possesses data about an individual entity:
a) 2NF
b) 3NF
c) 4NF
d) 5NF

View Answer

Answer: c
Explanation: A Table is in 4NF if and only if, for every one of its non-trivial multivalued dependencies X \twoheadrightarrow Y, X is a superkey—that is, X is either a candidate key or a superset thereof.

9. Which forms are based on the concept of functional dependency:
a) 1NF
b) 2NF
c) 3NF
d) 4NF

View Answer

Answer: c
Explanation: The table is in 3NF if every non-prime attribute of R is non-transitively dependent (i.e. directly dependent) on every superkey of R.

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10.

Empdt1(empcode, name, street, city, state, pincode).

For any pincode, there is only one city and state. Also, for given street, city and state, there is just one pincode. In normalization terms, empdt1 is a relation in
a) 1 NF only
b) 2 NF and hence also in 1 NF
c) 3NF and hence also in 2NF and 1NF
d) BCNF and hence also in 3NF, 2NF and 1NF

View Answer

Answer: b
Explanation: The relation in second normal form is also in first normal form and no partial dependencies on any column in primary key.

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# Database Questions and Answers – Functional-Dependency Theory

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Functional-Dependency Theory”.

1. We can use the following three rules to find logically implied functional dependencies. This collection of rules is called
a) Axioms
b) Armstrong’s axioms
c) Armstrong
d) Closure

View Answer

Answer: b
Explanation: By applying these rules repeatedly, we can find all of F+, given F.

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# Database Questions and Answers – Algorithms for Decomposition

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Algorithms for Decomposition”.

1. A relation is in _____ if an attribute of a composite key is dependent on an attribute of other composite key.
a) 2NF
b) 3NF
c) BCNF
d) 1NF

View Answer

Answer: b
Explanation: A relation is in 3 NF if an attribute of a composite key is dependent on an attribute of other composite key. (If an attribute of a composite key is dependent on an attribute of other composite key then the relation is not in BCNF, hence it has to be decomposed.).

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2. What are the desirable properties of a decomposition
a) Partition constraint
b) Dependency preservation
c) Redundancy
d) Security

View Answer

Answer: b
Explanation: Lossless join and dependency preserving are the two goals of the decomposition.

3. R (A,B,C,D) is a relation. Which of the following does not have a lossless join dependency preserving BCNF decomposition?
a) A->B, B->CD
b) A->B, B->C, C->D
c) AB->C, C->AD
d) A->BCD

View Answer

Answer: d
Explanation: This relation gives a relation without any loss in the values.

4.

```
Class (course id, title, dept name, credits, sec id, semester, YEAR, building, room NUMBER, capacity, TI
The SET OF functional dependencies that we require TO hold ON class are:
```

```
course id->title, dept name, credits
building, room number->capacity
course id, sec id, semester, year->building, room NUMBER, TIME slot id
A candidate KEY FOR this schema IS {course id, sec id, semester, YEAR}
```

Consider the above conditions. Which of the following relation holds?
a) Course id-> title, dept name, credits
b) Title-> dept name, credits
c) Dept name-> credits
d) Cannot be determined

View Answer

Answer: a
Explanation: Here course id is not a superkey. Thus, class is not in BCNF.

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5. The algorithm that takes a set of dependencies and adds one schema at a time, instead of decomposing the initial schema repeatedly is
a) BCNF algorithm
b) 2NF algorithm
c) 3NF synthesis algorithm
d) 1NF algorithm

View Answer

Answer: c
Explanation: The result is not uniquely defined, since a set of functional dependencies can h more than one canonical cover, and, further, in some cases, the result of the algorithm depends on the order in which it considers the dependencies in Fc.

6. The functional dependency can be tested easily on the materialized view, using the constraints _____.
a) Primary key
b) Null
c) Unique
d) Both Null and Unique

View Answer

Answer: d
Explanation: Primary key contains both unique and not null constraints.

7. Which normal form is considered adequate for normal relational database design?
a) 2NF
b) 5NF
c) 4NF
d) 3NF

View Answer

Answer: d
Explanation: A relational database table is often described as “normalized” if it is in the Third Normal Form because most of the 3NF tables are free of insertion, update, and deletion anomalies.

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8. Relation R with an associated set of functional dependencies, F, is decomposed into BCNF. The redundancy (arising out of functional dependencies) in the resulting set of relations is

a) Zero
b) More than zero but less than that of an equivalent 3NF decomposition
c) Proportional to the size of F+
d) Indeterminate

View Answer

Answer: b
Explanation: Redundancy in BCNF is low when compared to 3NF. For more details on BCNF.

9. A table has fields F1, F2, F3, F4, and F5, with the following functional dependencies:

```
F1->F3
F2->F4
(F1,F2)->F5
```

in terms of normalization, this table is in
a) 1NF
b) 2NF
c) 3NF
d) None of the mentioned

View Answer

Answer: a
Explanation: Since the primary key is not given we have to derive the primary key of the table. Using the closure set of attributes we get the primary key as (F1, F2). From functional dependencies, “F1->F3, F2->F4”, we can see that there is partial functional dependency therefore it is not in 1NF. Hence the table is in 1NF.

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10. Let R(A,B,C,D,E,P,G) be a relational schema in which the following FDs are known to hold:

```
AB->CD
DE->P
C->E
P->C
B->G
```

The relation schema R is
a) in BCNF
b) in 3NF, but not in BCNF
c) in 2NF, but not in 3NF
d) not in 2NF

View Answer

Answer: d
Explanation: From the closure set of attributes we can see that the key for the relation is AB. The FD B->G is a partial dependency, hence it is not in 2NF.

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# Database Questions and Answers – Keys

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This set of Database Multiple Choice Questions & Answers (MCQs) focuses on “Keys”.

1. Which one of the following is a set of one or more attributes taken collectively to uniquely identify a record?
a) Candidate key
b) Sub key
c) Super key
d) Foreign key

View Answer

Answer: c
Explanation: Super key is the superset of all the keys in a relation.

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2. Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key?
a) NAME
b) ID
c) CITY
d) CITY, ID

View Answer

Answer: b
Explanation: Here the id is the only attribute which can be taken as a key. Other attributes are not uniquely identified.

3. The subset of a super key is a candidate key under what condition?
a) No proper subset is a super key
b) All subsets are super keys
c) Subset is a super key
d) Each subset is a super key

View Answer

Answer: a
Explanation: The subset of a set cannot be the same set. Candidate key is a set from a super key which cannot be the whole of the super set.

4. A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
a) Rows
b) Key
c) Attribute
d) Fields

View Answer

Answer: b
Explanation: Key is the constraint which specifies uniqueness.

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5. Which one of the following attribute can be taken as a primary key?
a) Name
b) Street
c) Id
d) Department

View Answer

Answer: c
Explanation: The attributes name, street and department can repeat for some tuples. But the id attribute has to be unique. So it forms a primary key.

6. Which one of the following cannot be taken as a primary key?
a) Id
b) Register number
c) Dept_id
d) Street

View Answer

Answer: d
Explanation: Street is the only attribute which can occur more than once.

7. An attribute in a relation is a foreign key if the _____ key from one relation is used as an attribute in that relation.
a) Candidate
b) Primary

c) Super
d) Sub

View Answer

Answer: b
Explanation: The primary key has to be referred in the other relation to form a foreign key in that relation.

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8. The relation with the attribute which is the primary key is referenced in another relation. The relation which has the attribute as a primary key is called _____
a) Referential relation
b) Referencing relation
c) Referenced relation
d) Referred relation

View Answer

Answer: c
Explanation: None.

9. The _____ is the one in which the primary key of one relation is used as a normal attribute in another relation.
a) Referential relation
b) Referencing relation
c) Referenced relation

d) Referred relation

View Answer

Answer: c
Explanation: None.

10. A _____ integrity constraint requires that the values appearing in specified attributes of any tuple in the referencing relation also appear in specified attributes of at least one tuple in the referenced relation.
a) Referential
b) Referencing
c) Specific
d) Primary

View Answer

Answer: a
Explanation: A relation, say r1, may include among its attributes the primary key of another relation, say r2. This attribute is called a foreign key from r1, referencing r2. The relation r1 is also called the referencing relation of the foreign key dependency, and r2 is called the referenced relation of the foreign key.

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# Database Questions and Answers – Multivalued Dependencies

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This set of Database online quiz focuses on “Using Multivalued Dependencies”.

1. The normal form which satisfies multivalued dependencies and which is in BCNF is
a) 4 NF
b) 3 NF
c) 2 NF
d) All of the mentioned

View Answer

Answer: a
Explanation: Fourth normal form is more restrictive than BCNF.

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2. Which of the following is a tuple-generating dependencies?
a) Functional dependency
b) Equality-generating dependencies
c) Multivalued dependencies
d) Non-functional dependency

View Answer

Answer: c
Explanation: Multivalued dependencies, do not rule out the existence of certain tuples. Instead, they require that other tuples of a certain form be present in the relation.

3. The main task carried out in the _____ is to remove repeating attributes to separate tables.
a) First Normal Form
b) Second Normal Form
c) Third Normal Form
d) Fourth Normal Form

View Answer

Answer: a
Explanation: Multivalued dependencies, do not rule out the existence of certain tuples. Instead, they require that other tuples of a certain form be present in the relation.

4. Which of the normal form is based on multivalued dependencies?
a) First
b) Second
c) Third
d) Fourth

View Answer

Answer: d
Explanation: Multivalued dependencies, do not rule out the existence of certain tuples. Instead, they require that other tuples of a certain form be present in the relation.

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5. Which forms has a relation that possesses data about an individual entity?
a) 2NF
b) 3NF
c) 4NF
d) 5NF

View Answer

Answer: c
Explanation: A Table is in 4NF if and only if, for every one of its non-trivial multivalued dependencies X \twoheadrightarrow Y, X is a superkey—that is, X is either a candidate key or a superset thereof.

6. If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from one of the following sources.
a) A many-to-many relationship set
b) A multivalued attribute of an entity set
c) A one-to-many relationship set
d) Both A many-to-many relationship set and A multivalued attribute of an entity set

View Answer

Answer: d

Explanation: For a many-to-many relationship set each related entity set has its own schema and there is an additional schema for the relationship set. For a multivalued attribute, a separate schema is created consisting of that attribute and the primary key of the entity set.

7. Which of the following has each related entity set has its own schema and there is an additional schema for the relationship set?

a) A many-to-many relationship set

b) A multivalued attribute of an entity set

c) A one-to-many relationship set

d) None of the mentioned

View Answer

Answer: a

Explanation: If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from this source.

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8. In which of the following, a separate schema is created consisting of that attribute and the primary key of the entity set.

a) A many-to-many relationship set

b) A multivalued attribute of an entity set

c) A one-to-many relationship set

d) None of the mentioned

View Answer

Answer: b
Explanation: If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from this source.

9. Fifth Normal form is concerned with
a) Functional dependency
b) Multivalued dependency
c) Join dependency
d) Domain-key

View Answer

Answer: c
Explanation: If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from this source.

10. In 2NF
a) No functional dependencies (FDs) exist
b) No multivalued dependencies (MVDs) exist
c) No partial FDs exist
d) No partial MVDs exist

View Answer

Answer: c
Explanation: If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from this source.

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