SANFOUNDRY BITS

Topic name ::: Relational Database and Database Schema Keys

1. A relational database consists of a collection of ……….
a) Tables   b) Fields   c) Records   d) Keys   **Answer: a**
Explanation: Fields are the column of the relation or tables. Records are each row in a relation. Keys are the constraints in a relation.

2). A _____ in a table represents a relationship among a set of values.
a) Column   b) Key   c) Row   d) Entry   **Answer: c**
Explanation: Column has only one set of values. Keys are constraints and row is one whole set of attributes. Entry is just a piece of data.

3). The term _____ is used to refer to a row.
a) Attribute   b) Tuple   c) Field   d) Instance   **Answer: b**
Explanation: Tuple is one entry of the relation with several attributes which are fields.

4). The term attribute refers to a _____ of a table.
a) Record   b) Column   c) Tuple   d) Key   **Answer: b**
Explanation: Attribute is a specific domain in the relation which has entries of all tuples.

5. For each attribute of a relation, there is a set of permitted values, called the _____ of that attribute.
a) Domain   b) Relation   c) Set   d) Schema   **Answer: a**
Explanation: The values of the attribute should be present in the domain. Domain is a set of values permitted.

6. Database _____ which is the logical design of the database, and the database _____ which is a snapshot of the data in the database at a given instant in time.
Answer: d
a) Instance, Schema b) Relation, Schema c) Relation, Domain d) Schema, Instance
Explanation: Instance is an instance of time and schema is a representation.

7. Course(course_id,sec_id,semester)
Here the course_id,sec_id and semester are _____ and course is a _____
Answer: b
a) Relation,Attribute b)Attributes, Relation c)Tuple, Relationd)Tuple,Attributes
Explanation: The relation course has a set of attributes course_id, sec_id, semester .

8. Department (dept name, building, budget) and Employee (employee_id, name, dept name, salary)
Here the dept_name attribute appears in both the relations. Here using common attributes in relation schema is one way of relating _____ relations.
a) Attributes of common   b) Tuple of common
c) Tuple of distinct   d) Attributes of distinct   **Answer: c**
Explanation: Here the relations are connected by the common attributes.

9. A domain is atomic if elements of the domain are considered to be _____ units.
a) Different b) Indivisbile   c) Constant d) Divisible   **Answer: b**

10. The tuples of the relations can be of _____ order.
a) Any   b) Same   c) Sorted   d) Constant   **Answer: a**
Explanation: The values only count. The order of the tuples does not matter.

Topic Name :::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   **Answer: c**
Explanation: Super key is the superset of all the keys in a relation.
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   **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   **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   **Answer: b**
Explanation: Key is the constraint which specifies uniqueness.
5. Which one of the following attribute can be taken as a primary key?
a) Name   b) Street   c) Id   d) Department   **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   **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   **Answer: b**
Explanation: The primary key has to be referred in the other relation to form a foreign key in that relation.

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   **Answer: c**
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   **Answer: c**

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   **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.

Topic name :::Relational Query Operations and Relational Operators

1).Using which language can a user request information from a database?

a) Query   b) Relational   c) Structural   d) Compiler   **Answer: a**

Explanation: Query language is a method through which the database entries can be accessed.

2. Student(ID, name, dept name, tot_cred)

In this query which attributes form the primary key?

a) Name   b) Dept   c) Tot_cred   d) ID   **Answer: d**

Explanation: The attributes name, dept and tot_cred can have same values unlike ID.

3. Which one of the following is a procedural language?

a) Domain relational calculus   b) Tuple relational calculus

c) Relational algebra   d) Query language   **Answer: c**

Explanation: Domain and Tuple relational calculus are non-procedural language. Query language is a method through which database entries can be accessed.

4. The_____ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple.

a) Select   b) Join   c) Union   d) Intersection   **Answer: b**

Explanation: Join finds the common tuple in the relations and combines it.

5. The result which operation contains all pairs of tuples from the two relations, regardless of whether their attribute values match.

a) Join b) Cartesian product c) Intersection d) Set difference   **Answer: b**

Explanation: Cartesian product is the multiplication of all the values in the attributes.

6. The _____operation performs a set union of two "similarly structured" tables

a) Union   b) Join   c) Product   d) Intersect   **Answer: a**

Explanation: Union just combines all the values of relations of same attributes.

7. The most commonly used operation in relational algebra for projecting a set of tuple from a relation is

a) Join   b) Projection   c) Select   d) Union   **Answer: c**

Explanation: Select is used to view the tuples of the relation with or without some constraints.

8. The _____ operator takes the results of two queries and returns only rows that appear in both result sets.

a) Union   b) Intersect   c) Difference   d) Projection   **Answer: b**

Explanation: The union operator gives the result which is the union of two queries and difference is the one where query which is not a part of second query.

9. A _____ is a pictorial depiction of the schema of a database that shows the relations in the database, their attributes, and primary keys and foreign keys.
a) Schema diagram   b) Relational algebra
c) Database diagram   d) Schema flow   **Answer: a**
10. The _____ provides a set of operations that take one or more relations as input and return a relation as an output.
a) Schematic representation   b) Relational algebra
c) Scheme diagram   d) Relation flow   **Answer: b**

TOpic name ::SQL Basics and SQL Data Definition

1). Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?
a) DML(Data Manipulation Language)   b) DDL(Data Definition Language)
c) Query   d) Relational Schema   **Answer: b**
Explanation: Data Definition language is the language which performs all the operation in defining structure of relation.

2. Which one of the following provides the ability to query information from the database and to insert tuples into, delete tuples from, and modify tuples in the database?
a) DML(Data Manipulation Langauge)   b) DDL(Data Definition Langauge)
c) Query   d) Relational Schema   **Answer: a**
Explanation: DML performs the change in the values of the relation.
3.CREATE TABLE employee (name VARCHAR, id INTEGER)
What type of statement is this?
a) DML   b) DDL   c) View   d)Integrity constraint   **Answer: b**
Explanation: Data Definition language is the language which performs all the operation in defining structure of relation.
4.SELECT * FROM employee
What type of statement is this?
a) DML   b) DDL   c) View   d) Integrity constraint   **Answer: a**
Explanation: Select operation just shows the required fields of the relation. So it forms a DML.
5. The basic data type char(n) is a _____ length character string and varchar(n) is _____ length character.
a) Fixed, equal   b) Equal,variable   c) Fixed,variable   d)Variable, equal**Answer: c**
Explanation: Varchar changes its length accordingly whereas char has a specific length which has to be filled by either letters or spaces.
6. An attribute A of datatype varchar(20) has the value "Avi". The attribute B of datatype char(20) has value "Reed". Here attribute A has ____ spaces and attribute B has ____ spaces.
a) 3, 20   b) 20, 4   c) 20, 20   d) 3, 4   **Answer: a**
Explanation: Varchar changes its length accordingly whereas char has a specific length which has to be filled by either letters or spaces.
7. To remove a relation from an SQL database, we use the _____ command.
a) Delete   b) Purge   c) Remove   d) Drop table   **Answer: d**

Explanation: Drop table deletes the whole structure of the relation .purge removes the table which cannot be obtained again.

8). DELETE FROM r;   //r - relation

This command performs which of the following action?

a) Remove relation   b) Clear relation entries

c) Delete fields   d) Delete rows   **Answer: b**

Explanation: Delete command removes the entries in the table.

9.INSERT INTO instructor VALUES (10211, 'Smith', 'Biology', 66000);

What type of statement is this?

a) Query   b) DML   c) Relational   d) DDL   **Answer: b**

Explanation: The values are manipulated. So it is a DML.

10. Updates that violate _____ are disallowed.

a) Integrity constraints   b) Transaction control

c) Authorization   d) DDL constraints   **Answer: a**

Explanation: Integrity constraint has to be maintained in the entries of the relation.

Topic name ::::SQL Queries

1).

Name
Annie
Bob
Callie
Derek

Which of these query will display the the table given above ?

a) Select employee from name   b) Select name

c) Select name from employee   d) Select employee   **Answer: c**

Explanation: The field to be displayed is included in select and the table is included in the from clause.

2. Here which of the following displays the unique values of the column?

SELECT _____ dept_name   FROM instructor;

a) All   b) From   c) Distinct   d) Name   **Answer: c**

Explanation: Distinct keyword selects only the entries that are unique.

3. The _____ clause allows us to select only those rows in the result relation of the ____ clause that satisfy a specified predicate.

a) Where, from   b) From, select   c) Select, from   d) From, where   **Answer: a**

Explanation: Where selects the rows on a particular condition. From gives the relation which involves the operation.

4. The query given below will not give an error. Which one of the following has to be replaced to get the desired output?

SELECT ID, name, dept name, salary * 1.1 WHERE instructor;

a)Salary*1.1   b) ID   c) Where   d) Instructor   **Answer: c**

Explanation: Where selects the rows on a particular condition. From gives the relation which involves the operation. Since Instructor is a relation it has to have from clause.

5. The _____ clause is used to list the attributes desired in the result of a query.
a) Where   b) Select   c) From   d) Distinct   **Answer: b**
Explanation: None

6. This Query can be replaced by which one of the following?
SELECT name, course_id
 FROM instructor, teaches
 WHERE instructor_ID= teaches_ID;
a) Select name,course_id from teaches,instructor where instructor_id=course_id;
b) Select name, course_id from instructor natural join teaches;
c) Select name, course_id from instructor;
d) Select course_id from instructor join teaches;   **Answer: b**
Explanation: Join clause joins two tables by matching the common column.

7. SELECT * FROM employee WHERE salary>10000 AND dept_id=101;
 Which of the following fields are displayed as output?
a) Salary, dept_id   b) Employee
c) Salary   d) All the field of employee relation   **Answer: d**
Explanation: Here * is used to select all the fields of the relation.
Employee_id   Name Salary
1001 Annie 6000
1009 Ross 4500
1018 Zeith 7000

8).

Employee_id	Name	Salary
1001	Annie	6000
1009	Ross	4500
1018	Zeith	7000

This is Employee table.
Which of the following employee_id will be displayed for the given query?
SELECT * FROM employee WHERE employee_id>1009;
a)1009, 1001, 1018 b)1009, 1018 c)1001 d)1018   **Answer: d**
Explanation: Greater than symbol does not include the given value unlike >=.

9. 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';   **Answer: d**
Explanation: This query do not have from clause which specifies the relation from which the values has to be selected.

10. In the given query which of the keyword has to be inserted?
INSERT INTO employee _____ (1002,Joey,2000);
a) Table   b) Values   c) Relation   d) Field   **Answer: b**
Explanation: Value keyword has to be used to insert the values into the table.

Topic name::Basic SQL Operations

1.SELECT name _____ instructor name, course id

FROM instructor, teaches

WHERE instructor.ID= teaches.ID;

Which keyword must be used here to rename the field name?

a) From b) Rename c) As d) Join **Answer: c**

Explanation: As keyword is used to rename.

2.SELECT * FROM employee WHERE dept_name="Comp Sci";

In the SQL given above there is an error . Identify the error.

a) Dept_name b) Employee c) "Comp Sci" d) From **Answer: c**

Explanation: For any string operations single quoted(') must be used to enclose.

3). SELECT emp_name

FROM department

WHERE dept_name LIKE ' _____ Computer Science';

Which one of the following has to be added into the blank to select the dept_name which has Computer Science as its ending string?

a) % b) _ c) || d) $ **Answer: a**

Explanation: The % character matches any substring.

4. '_ _ _ ' matches any string of _____ three characters. '_ _ _ %' matches any string of at _____ three characters.

a) Atleast, Exactly b)Exactly, Atleast c)Atleast, All d)All, Exactly **Answer: b**

5). SELECT name

FROM instructor

WHERE dept name = 'Physics'

ORDER BY name;

By default, the order by clause lists items in _____ order.

a) Descending b) Any c) Same d) Ascending **Answer: d**

Explanation: Specification of descending order is essential but it not for ascending

6.SELECT *

FROM instructor

ORDER BY salary ___, name ___;

To display the salary from greater to smaller and name in ascending order which of the following options should be used? **Answer: c**

a) Ascending, Descendin b)Asc, Desc c) Desc, Asc d) Descending, Ascending

7.SELECT name

FROM instructor

WHERE salary <= 100000 AND salary >= 90000;

This query can be replaced by which of the following ?

  a) SELECT name

FROM instructor

WHERE salary BETWEEN 90000 AND 100000;

b)

SELECT name

FROM employee

WHERE salary <= 90000 AND salary>=100000;

c)

SELECT name

FROM employee

WHERE salary BETWEEN 90000 AND 100000;

d)

SELECT name

FROM instructor

WHERE salary BETWEEN 100000 AND 90000;   **Answer: a**

Explanation: SQL includes a between comparison operator to simplify where clauses that specify that a value be less than or equal to some value and greater than or equal to some other value.

8.SELECT instructor.*

FROM instructor, teaches

WHERE instructor.ID= teaches.ID;

This query does which of the following operation?

a) All attributes of instructor and teaches are selected

b) All attributes of instructor are selected on the given condition

c) All attributes of teaches are selected on given condition

d) Only the some attributes from instructed and teaches are selected **Answer: b**

Explanation: The asterisk symbol " * " can be usedin the select clause to denote "all attributes."

9. In SQL the spaces at the end of the string are removed by _____ function.

a) Upper   b) String   c) Trim   d) Lower   **Answer: c**

Explanation: The syntax of trim is Trim(s); where s-string.

10. _____ operator is used for appending two strings.

a) &   b) %   c) || d) _   **Answer: c**

Explanation: || is the concatenation operator.

Topic name::: Set Operations

1. The union operation is represented by

a) ∩   b) U   c)—   d) *   **Answer: b**

Explanation: Union operator combines the relations.

2. The intersection operator is used to get the _____ tuples.

a) Different   b) Common   c) All   d) Repeating   **Answer: b**

Explanation: Intersection operator ignores unique tuples and takes only common ones.

3. The union operation automatically _____ unlike the select clause.

a) Adds tuples   b) Eliminates unique tuples

c) Adds common tuples   d) Eliminates duplicate   **Answer: d**

4. If we want to retain all duplicates, we must write _____ in place of union.

a) Union all b) Union some   c) Intersect all   d) Intersect some   **Answer: a**

Explanation: Union all will combine all the tuples including duplicates.

5). (SELECT course id

FROM SECTION

WHERE semester = 'Fall' AND YEAR= 2009)
EXCEPT
(SELECT course id
FROM SECTION
WHERE semester = 'Spring' AND YEAR= 2010);
Answer: d
Explanation: Except keyword is used to ignore the values.
6. For like predicate which of the following is true.
i) % matches zero OF more characters.ii) _ matches exactly one CHARACTER.
a) i-only   b) ii-only   c) i & ii   d) None of the mentioned   **Answer: a**
Explanation:% is used with like and _ is used to fill in the character.
7. The number of attributes in relation is called as its
a) Cardinality   b) Degree   c) Tuples   d) Entity   **Answer: b**
8. _____ clause is an additional filter that is applied to the result.
a) Select   b) Group-by   c) Having   d) Order by   **Answer: c**
Explanation: Having is used to provide additional aggregate filtration to the query.
9. _____ joins are SQL server default
a) Outer   b) Inner   c) Equi   d) None of the mentioned   **Answer: b**
Explanation: It is optional to give the inner keyword with the join as it is default.
10. The _____ is essentially used to search for patterns in target string.
a) Like Predicate b) Null Predicate c) In Predicate d) Out Predicate **Answer: a**
Explanation: Like predicate matches the string in the given pattern.

Topic name :::Null Values Operations

1. A _____ indicates an absent value that may exist but be unknown or that may not exist at all.
a) Empty tuple   b) New value   c) Null value   d) Old value   **Answer: c**
2. If the attribute phone number is included in the relation all the values need not be entered into the phone number column. This type of entry is given as
a) 0   b) –   c) Null   d) Empty space   **Answer: c**
Explanation: Null is used to represent the absence of a value.
3. The predicate in a where clause can involve Boolean operations such as and. The result of true and unknown is_____ false and unknown is _____ while unknown and unknown is _____
a) Unknown, unknown, false   b) True, false, unknown
c) True, unknown, unknown   d) Unknown, false, unknown   **Answer: d**
4.SELECT name
FROM instructor
WHERE salary IS NOT NULL;
Selects
a) Tuples with null value   b) Tuples with no null values
c) Tuples with any salary   d) All of the mentioned   **Answer: b**
Explanation: Not null constraint removes the tpules of null values.

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5. In an employee table to include the attributes whose value always have some value which of the following constraint must be used?

a) Null   b) Not null   c) Unique   d) Distinct   **Answer: b**

Explanation: Not null constraint removes the tuples of null values.

6. Using the _____ clause retains only one copy of such identical tuples.

a) Null   b) Unique   c) Not null   d) Distinct   **Answer: d**

Explanation: Unique is a constraint.

7).CREATE TABLE employee (id INTEGER,name VARCHAR(20),salary NOT NULL);

INSERT INTO employee VALUES (1005,Rach,0);

INSERT INTO employee VALUES (1007,Ross,);

INSERT INTO employee VALUES (1002,Joey,335);

Some of these insert statements will produce an error. Identify the statement.

a) Insert into employee values (1005,Rach,0);

b) Insert into employee values (1002,Joey,335);

c) Insert into employee values (1007,Ross,);

d) None of the mentioned   **Answer: c**

Explanation: Not null constraint is specified which means some value (can include 0 also) should be given.

8. The primary key must be   Answer: c

a) Unique   b) Not null   c) Both Unique and Not null d) Either Unique or Not null

Explanation: Primary key must satisfy unique and not null condition for sure.

9. You attempt to query the database with this command:

 SELECT nvl (100 / quantity, NONE)

    FROM inventory;

Why does this statement cause an error when QUANTITY values are null?

a) The expression attempts to divide by a null value

b) The data types in the conversion function are incompatible

c) The character string none should be enclosed in single quotes ('') **Answer: a**

d) A null value used in an expression cannot be converted to an actual value

Explanation: The expression attempts to divide by a null value is erroneous in sql.

10. The result of _____unknown is unknown.

a) Xor   b) Or   c) And   d) Not   **Answer: d**

Explanation: Since unknown does not hold any value the value cannot have a reverse value.

Topic Name :::: Aggregate Functions and Nested Subqueries – 1

1. Aggregate functions are functions that take a _____ as input and return a single value.

a) Collection of values   b) Single value

c) Aggregate value   d) Both Collection of values & Single value **Answer: a**

2.SELECT _____

FROM instructor

WHERE dept name= 'Comp. Sci.';

Which of the following should be used to find the mean of the salary ?

a) Mean(salary)   b) Avg(salary)   c) Sum(salary)   d) Count(salary) **Answer: b**

Explanation: Avg() is used to find the mean of the values.

3).SELECT COUNT (____ ID)
FROM teaches
WHERE semester = 'Spring' AND YEAR = 2010;
If we do want to eliminate duplicates, we use the keyword _____in the aggregate expression.
a) Distinct   b) Count   c) Avg   d) Primary key   **Answer: a**
Explanation: Distinct keyword is used to select only unique items from the relation.
4. All aggregate functions except _____ ignore null values in their input collection.
a) Count(attribute) b) Count(*)   c) Avg   d) Sum   **Answer: b**
Explanation: * is used to select all values including null.
5. A Boolean data type that can take values true, false, and_____
a) 1   b) 0   c) Null   d) Unknown   **Answer: d**
Explanation: Unknown values do not take null value but it is not known.
6. The ____ connective tests for set membership, where the set is a collection of values
produced by a select clause. The ____ connective tests for the absence of set membership.
a) Or, in   b) Not in, in   c) In, not in   d) In, or   **Answer: c**
Explanation: In checks, if the query has the value but not in checks if it does not have the value.
7. Which of the following should be used to find all the courses taught in the Fall 2009 semester
but not in the Spring 2010 semester .
a) SELECT DISTINCT course id
FROM SECTION
WHERE semester = 'Fall' AND YEAR= 2009 AND
course id NOT IN (SELECT course id
FROM SECTION
WHERE semester = 'Spring' AND YEAR= 2010);

b) SELECT DISTINCT course_id
FROM instructor
WHERE name NOT IN ('Fall', 'Spring');
c)   (SELECT course id
FROM SECTION
WHERE semester = 'Spring' AND YEAR= 2010)
d) SELECT COUNT (DISTINCT ID)
FROM takes
WHERE (course id, sec id, semester, YEAR) IN (SELECT course id, sec id, semester, YEAR
FROM teaches
WHERE teaches.ID= 10101);   **Answer: a**
8. The phrase "greater than at least one" is represented in SQL by _____
a) < all   b) < some   c) > all   d) > some   **Answer: d**
Explanation: >some takes atlest one value above it .
9. Which of the following is used to find all courses taught in both the Fall 2009 semester and in
the Spring 2010 semester .
a)SELECT course id
FROM SECTION AS S
WHERE semester = 'Fall' AND YEAR= 2009 AND

EXISTS (SELECT *
FROM SECTION AS T
WHERE semester = 'Spring' AND YEAR= 2010 AND
S.course id= T.course id);

b)SELECT name
FROM instructor
WHERE salary > SOME (SELECT salary
FROM instructor
WHERE dept name = 'Biology');
c)SELECT COUNT (DISTINCT ID)
FROM takes
WHERE (course id, sec id, semester, YEAR) IN (SELECT course id, sec id, semester, YEAR
FROM teaches
WHERE teaches.ID= 10101);
d)(SELECT course id
FROM SECTION
WHERE semester = 'Spring' AND YEAR= 2010)   **Answer: a**
10. We can test for the nonexistence of tuples in a subquery by using the _____ construct.
a) Not exist   b) Not exists   c) Exists   d) Exist   **Answer: b**
Explanation: Exists is used to check for the existence of tuples.
Topic name::: Aggregate Functions and Nested Subqueries – 2

1.SELECT dept_name, ID, avg (salary)
FROM instructor
GROUP BY dept_name;
This statement IS erroneous because
a) Avg(salary) should not be selected
b) Dept_id should not be used in group by clause
c) Misplaced group by clause
d) Group by clause is not valid in this query   **Answer: b**
Explanation: Any attribute that is not present in the group by clause must appear only inside an
aggregate function if it appears in the select clause, otherwise the query is treated as erroneous.
2. SQL applies predicates in the _____ clause after groups have been formed, so aggregate
functions may be used.
a) Group by   b) With   c) Where   d) Having   **Answer: b**
Explanation: The with clause provides away of defining a temporary relation whose definition
is available only to the query in which the with clause occurs.
3. Aggregate functions can be used in the select list or the_____clause of a select statement or
subquery.They cannot be used in a ____ clause. **Answer: b**
a) Where, having   b) Having, where c) Group by, having   d) Group by, where
Explanation: To include aggregate functions having clause must be included after where.
4. The _____ keyword is used to access attributes of preceding tables or subqueries in the
from clause.

a) In   b) Lateral   c) Having   d) With   **Answer: b**
Explanation:
Without the lateral clause, the subquery cannot access the correlation variable
I1 from the outer query.
5. Which of the following creates a temporary relation for the query on which it is defined?
a) With   b) From   c) Where   d) Select   **Answer: a**
Explanation: The with clause provides a way of defining a temporary relation whose definition
is available only to the query in which the with clause occurs.
6.In the query given above which one of the following is a temporary relation?
a) Budget   b) Department   c) Value   d) Max_budget   **Answer: d**
Explanation: With clause creates a temporary relation.
7. Subqueries cannot:
a) Use group by or group functions
b) Retrieve data from a table different from the one in the outer query
c) Join tables
d) Appear in select, update, delete, insert statements.   **Answer: c**
8. Which of the following is not an aggregate function?
a) Avg   b) Sum   c) With   d) Min   **Answer: c**
Explanation: With is used to create temporary relation and its not an aggregate function.
9. The EXISTS keyword will be true if:
a) Any row in the subquery meets the condition only
b) All rows in the subquery fail the condition only
c) Both of these two conditions are met
d) Neither of these two conditions is met   **Answer: a**
Explanation: EXISTS keyword checks for existance of a condition.
10. How can you find rows that do not match some specified condition?
a) EXISTS   b) Double use of NOT EXISTS
c) NOT EXISTS   d) None of the mentioned   **Answer: b**

Topic Name :: Modification of Database
1. A Delete command operates on _____ relation.
a) One   b) Two   c) Several   d) Null   **Answer: a**
Explanation: Delete can delete from only one table at a time.
2.Delete from r where P;
The above command
a) Deletes a particular tuple from the relationb) Deletes the relation
c) Clears all entries from the relation   d) All of the mentioned **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;   **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) 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   **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
associated with a department located in the Watson building which is in department relation.
a) DELETE FROM instructor
   WHERE dept_name IN 'Watson';
b)   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   **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   **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 **Answer: d**
Explanation: None.
8. The problem of ordering the update in multiple updates is avoided using
a) Set   b) Where   c) Case   d) When   **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   **Answer: b**
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   **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.

Topic name ::: Join Expressions
1. The____condition allows a general predicate over the relations being joined.
a) On   b) Using   c) Set   d) Where   **Answer: a**
Explanation: On gives the condition for the join expression.
2. Which of the join operations do not preserve non matched tuples?
a) Left outer join   b) Right outer join   c) Inner join   d) Natural join **Answer: c**
Explanation: INNER JOIN: Returns all rows when there is at least one match in BOTH tables.
3. SELECT *
  FROM student JOIN takes USING (ID);

The above query is equivalent to
   a) SELECT *
  FROM student INNER JOIN takes USING (ID);
   b) SELECT *
  FROM student OUTER JOIN takes USING (ID);
   c) SELECT *
  FROM student LEFT OUTER JOIN takes USING (ID);
  d) None of the mentioned   **Answer: a**
Explanation: Join can be replaced by inner join.
4. What type of join is needed when you wish to include rows that do not have matching values?
a) Equi-join b) Natural join c) Outer join d) All of the mentioned **Answer: c**
Explanation: An outer join does not require each record in the two joined tables to have a matching record..
5. How many tables may be included with a join?
a) One   b) Two   c) Three   d) All of the mentioned   **Answer: d**
Explanation: Join can combine multiple tables.
6. Which are the join types in join condition:
a) Cross join   b) Natural join
c) Join with USING clause d) All of the mentioned   **Answer: d**
Explanation: There are totally four join types in SQL.
7. How many join types in join condition:
a) 2   b) 3   c) 4   d) 5   **Answer: d**
Explanation: Types are inner join, left outer join, right outer join, full join, cross join.
8. Which join refers to join records from the right table that have no matching key in the left table are include in the result set: **Answer:b**
a) Left outer join b) Right outer join c) Full outer join d) Half outer join
Explanation: RIGHT OUTER JOIN: Return all rows from the right table and the matched rows from the left table.
9. The operation which is not considered a basic operation of relational algebra is
a) Join   b) Selection c) Union   d) Cross product   **Answer: a**
Explanation: None.
10. In SQL the statement select * from R, S is equivalent to
a) Select * from R natural join S   b) Select * from R cross join S
c) Select * from R union join S   d) Select * from R inner join S **Answer: b**

Topic Name :::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 **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.
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";

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   **Answer: c**

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

4. Materialised views make sure that   Answer: b

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

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   **Answer: a**

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   **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   **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) 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;   **Answer: a**

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   **Answer: b**

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

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   **Answer: d**

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

Topic Name ::::Transactions

1. A _____ consists of a sequence of query and/or update statements.

a) Transaction b) Commit c) Rollback d) Flashback   **Answer: a**

Explanation: Transaction is a set of operation until commit.

2. Which of the following makes the transaction permanent in the database?

a) View   b) Commit c) Rollback d) Flashback   **Answer: b**

Explanation: Commit work commits the current transaction.

3. In order to undo the work of transaction after last commit which one should be used?

a) View b) Commit   c) Rollback d) Flashback   **Answer: c**

Explanation: Rollback work causes the current transaction to be rolled back; that is, it undoes all the updates performed by the SQL statements in the transaction.

4. Consider the following action:

TRANSACTION.....

Commit;

ROLLBACK;

What does Rollback do?

a) Undoes the transactions before commit   b) Clears all transactions

c) Redoes the transactions before commit   d) No action   **Answer: d**

Explanation: Once a transaction has executed commit work, its effects can no longer be undone by rollback work.

5. In case of any shut down during transaction before commit which of the following statement is done automatically?

a) View   b) Commit   c) Rollback   d) Flashback   **Answer: c**

Explanation: Once a transaction has executed commit work, its effects can no longer be undone by rollback work.

6. In order to maintain the consistency during transactions, database provides

a) Commit   b) Atomic   c) Flashback   d) Retain   **Answer: b**

Explanation: By atomic, either all the effects of the transaction are reflected in the database, or none are (after rollback).

7. Transaction processing is associated with everything below except

a) Conforming an action or triggering a response

b) Producing detail summary or exception report

c) Recording a business activity   d) Maintaining a data   **Answer: a**

8. A transaction completes its execution is said to be

a) Committed   b) Aborted   c) Rolled back   d) Failed   **Answer: a**

Explanation: A complete transaction always commits.

9. Which of the following is used to get back all the transactions back after rollback?

a) Commit   b) Rollback   c) Flashback   d) Redo   **Answer: c**

10. _____ will undo all statements up to commit?

a) Transaction   b) Flashback   c) Rollback   d) Abort   **Answer: c**

Explanation: Flashback will undo all the statements and Abort will terminate the operation.

Topic Name ::::Integrity Constraints

1. To include integrity constraint in an existing relation use :

a) Create table b) Modify table c) Alter table   d) Drop table   **Answer: c**

Explanation: SYNTAX – alter table table-name add constraint, where constraint can be any constraint on the relation.

2. Which of the following is not an integrity constraint?

a) Not null b) Positive   c) Unique   d) Check 'predicate'   **Answer: b**

Explanation: Positive is a value and not a constraint.

3.CREATE TABLE Employee(Emp_id NUMERIC NOT NULL, Name VARCHAR(20) , dept_name VARCHAR(20), Salary NUMERIC UNIQUE(Emp_id,Name));

INSERT INTO Employee VALUES(1002, Ross, CSE, 10000)

INSERT INTO Employee VALUES(1006,Ted,Finance,);

INSERT INTO Employee VALUES(1002,Rita,Sales,20000);

What will be the result of the query?

a) All statements executed   b) Error in create statement

c) Error in insert into Employee values(1006,Ted,Finance,);

d) Error in insert into Employee values(1008,Ross,Sales,20000);   **Answer: d**

Explanation: The not null specification prohibits the insertion of a null value for the attribute. The unique specification says that no two tuples in the relation can be equal on all the listed attributes.

4).CREATE TABLE Manager(ID NUMERIC,Name VARCHAR(20),budget NUMERIC,Details VARCHAR(30));

Inorder to ensure that the value of budget is non-negative which of the following should be used?   Answer: a

a) Check(budget>0) b) Check(budget<0) c)Alter(budget>0)d) Alter(budget<0)

Explanation: A common use of the check clause is to ensure that attribute values satisfy specified conditions, in effect creating a powerful type system.

5. Foreign key is the one in which the _____ of one relation is referenced in another relation.

a) Foreign key b) Primary key c) References d) Check constraint **Answer: b**

Explanation: The foreign-key declaration specifies that for each course tuple, the department name specified in the tuple must exist in the department relation.

6.CREATE TABLE course

(. . .

FOREIGN KEY (dept name) REFERENCES department

. . .);

Which of the following is used to delete the entries in the referenced table when the tuple is deleted in course table?

a) Delete   b) Delete cascade c) Set null d) All of the mentioned   **Answer: b**

Explanation: The delete "cascades" to the course relation, deletes the tuple that refers to the department that was deleted.

7. Domain constraints, functional dependency and referential integrity are special forms of _____

a) Foreign key b) Primary key c)Assertion d) Referential constraint **Answer: c**

Explanation: An assertion is a predicate expressing a condition we wish the database to always satisfy.

8. Which of the following is the right syntax for the assertion?

a) Create assertion 'assertion-name' check 'predicate';

b) Create assertion check 'predicate' 'assertion-name';

c) Create assertions 'predicates'; d) All of the mentioned   **Answer: a**

9. Data integrity constraints are used to:

a) Control who is allowed access to the data

b) Ensure that duplicate records are not entered into the table

c) Improve the quality of data entered for a specific property (i.e., table column)

d) Prevent users from changing the values stored in the table   **Answer: c**

10. Which of the following can be addressed by enforcing a referential integrity constraint?

a) All phone numbers must include the area code

b) Certain fields are required (such as the email address, or phone number) before the record is accepted

c) Information on the customer must be known before anything can be sold to that customer
d) When entering an order quantity, the user must input a number and not some text (i.e., 12 rather than 'a dozen')   **Answer: c**
Explanation: The information can be referred to and obtained.

Topic Name :::SQL Data Types and Schemas
1. Dates must be specified in the format
a) mm/dd/yy\ b) yyyy/mm/dd c) dd/mm/yy   d) yy/dd/mm   **Answer: b**
Explanation: yyyy/mm/dd is the default format in sql.
2. A _____ on an attribute of a relation is a data structure that allows the database system to find those tuples in the relation that have a specified value for that attribute efficiently, without scanning through all the tuples of the relation.
a) Index   b) Reference   c) Assertion   d) Timestamp   **Answer: a**
Explanation: Index is the reference to the tuples in a relation.
3.Create index studentID_index on student(ID);
Here which one denotes the relation for which index is created?
a) StudentID_index   b) ID   c) StudentID d) Student   **Answer: d**
Explanation: The statement creates an index named studentID index on the attribute ID of the relation student.
4. Which of the following is used to store movie and image files?
a) Clob   b) Blob   c) Binary   d) Image   **Answer: b**
Explanation: SQL therefore provides large-object data types for character data (clob) and binary data (blob). The letters "lob" in these data types stand for "Large OBject".
5. The user defined data type can be created using
a) Create datatype   b)Create data c)Create definetype d) Create type**Answer: d**
Explanation: The create type clause can be used to define new types.Syntax : create type Dollars as numeric(12,2) final; .
6. Values of one type can be converted to another domain using which of the following?
a) Cast b) Drop type   c) Alter type   d) Convert   **Answer: a**
Explanation: Example of cast :cast (department.budget to numeric(12,2)). SQL provides drop type and alter type clauses to drop or modify types that have been created earlier.
7.CREATE DOMAIN YearlySalary NUMERIC(8,2)
CONSTRAINT salary VALUE test _____;
In order to ensure that an instructor's salary domain allows only values greater than a specified value use:
a) Value>=30000.00   b) Not null;
c) Check(value >= 29000.00);   d) Check(value)   **Answer: c**
Explanation: Check(value 'condition') is the syntax.
8. Which of the following closely resembles Create view?
a) Create table . . .like   b) Create table . . . as
c) With data   d) Create view as   **Answer: b**

Explanation: The 'create table . . . as' statement closely resembles the create view statement and both are defined by using queries. The main difference is that the contents of the table are set when the table is created, whereas the contents of a view always reflect the current query result.

9. In contemporary databases, the top level of the hierarchy consists of _____ each of which can contain _____

a) Catalogs, schemas   b) Schemas, catalogs
c) Environment, schemas   d) Schemas, Environment   **Answer: a**

10. Which of the following statements creates a new table temp instructor that has the same schema as an instructor.   **Answer: b**

a) create table temp_instructor;   b) Create table temp_instructor like instructor;
c) Create Table as temp_instructor d) Create table like temp_instructor;

Topic name :Functions and Procedures

1.Create function dept count(dept_name varchar(20))
begin
declare d count integer;
select count(*) into d count
from instructor
where instructor.dept_name= dept_name
return d count;
end

Find the error in the the above statement.

a) Return type missing   b) Dept name is mismatched
c) Reference relation is not mentioned d) All of the mentioned   **Answer: a**

Explanation: Return integer should be given after create function for this particular function.

2. For the function created in Question 1, which of the following is a proper select statement ?

a) SELECT dept name, budget
FROM instructor
WHERE dept COUNT() > 12;
    b) SELECT dept name, budget
FROM instructor
WHERE dept COUNT(dept name) > 12;
    c) SELECT dept name, budget
WHERE dept COUNT(dept name) > 12;
    d) SELECT dept name, budget
FROM instructor
WHERE dept COUNT(budget) > 12;   **Answer: b**

Explanation: The count of the dept_name must be checked for the displaying from instructor relation.

3. Which of the following is used to input the entry and give the result in a variable in a procedure?

a) Put and get b) Get and put   c) Out and In d) In and out   **Answer: d**

Explanation: Create procedure dept count proc(in dept name varchar(20), out d count integer). Here in and out refers to input and result of procedure.

4.Create procedure dept_count proc(in dept name varchar(20),
out d count integer)
begin
select count(*) into d count
from instructor
where instructor.dept name= dept count proc.dept name
end
Which of the following is used to call the procedure given above ?
a) Declare d_count integer;
b) Declare d_count integer;
   call dept_count proc('Physics', d_count);
    c) Declare d_count integer;
   call dept_count proc('Physics');
    d) Declare d_count;
   call dept_count proc('Physics', d_count);   **Answer: b**
Explanation: Here the 'Physics' is in variable and d_count is out variable.
5. The format for compound statement is
a) Begin ……. End   b) Begin atomic……. End   Answer: d
c) Begin ……. Repeat   d) Both Begin ……. end and Begin atomic……. end
Explanation: A compound statement is of the form begin . . . end, and it may contain multiple
SQL statements between the begin and the end.A compound statement of the form begin atomic
. . . end ensures that all the statements contained within it are executed as a single transaction.
6.Repeat
sequence of statements;
_____
end repeat
Fill in the correct option :
a) While Condition   b) Until variable
c) Until boolean expression   d) Until 0   **Answer: c**
7. Which of the following is the correct format for if statement?
a) If boolean expression
then statement or compound statement
elseif boolean expression
then statement or compound statement
else statement or compound statement
end if
b) If boolean expression
then statement or compound statement
elsif boolean expression
then statement or compound statement
else statement or compound statement
end if
c) If boolean expression
then statement or compound statement

elif boolean expression

then statement or compound statement

else statement or compound statement

end if

d). If boolean expression

then statement or compound statement

else

 statement or compound statement

else statement or compound statement

end if   **Answer: a**

Explanation: The conditional statements supported by SQL include if-then-else statements by using this syntax. elif and elsif are not allowed.

8. A stored procedure in SQL is a_____

a) Block of functions

b) Group of Transact-SQL statements compiled into a single execution plan.

c) Group of distinct SQL statements. d) None of the mentioned   **Answer: b**

Explanation: If it an atomic statement then the statements are in single transaction.

9. Temporary stored procedures are stored in _____ database.

a) Master   b) Model   c) User specific   d) Temp db   **Answer: d**

10. Declare out of classroom seats condition

DECLARE exit handler FOR OUT OF classroom seats

BEGIN

SEQUENCE OF statements

END

The above statements are used for

a) Calling procedures   b) Handling Exception

c) Handling procedures   d) All of the mentioned   **Answer: b**

Explanation: The SQL procedural language also supports the signaling of exception conditions, and declaring of handlers that can handle the exception, as in this code.

Topic name :The Entity-Relationship Model

1. An _____ is a set of entities of the same type that share the same properties, or attributes.

a) Entity set b) Attribute set c) Relation set d) Entity model   **Answer: a**

Explanation: An entity is a "thing" or "object" in the real world that is distinguishable from all other objects.

2. Entity is a _____

a) Object of relation   b) Present working model

c) Thing in real world   d) Model of relation   **Answer: c**

Explanation: For example, each person in a university is an entity.

3. The descriptive property possessed by each entity set is _____

a) Entity   b) Attribute   c) Relation   d) Model   **Answer: b**

Explanation: Possible attributes of the instructor entity set are ID, name, dept name, and salary.

4. The function that an entity plays in a relationship is called that entity's _____

a) Participation   b) Position   c) Role   d) Instance   **Answer: c**

Explanation: A relationship is an association among several entities.

5. The attribute name could be structured as an attribute consisting of first name, middle initial, and last name. This type of attribute is called

a) Simple attribute   b) Composite attribute

c) Multivalued attribute   d) Derived attribute   **Answer: b**

Explanation: Composite attributes can be divided into subparts (that is, other attributes).

6. The attribute AGE is calculated from DATE_OF_BIRTH. The attribute AGE is

a) Single valued   b) Multi valued   c) Composite   d) Derived   **Answer: d**

Explanation: The value for this type of attribute can be derived from the values of other related attributes or entities.

7. Not applicable condition can be represented in relation entry as

a) NA   b) 0   c) NULL   d) Blank Space   **Answer: c**

Explanation: NULL always represents that the value is not present.

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

a) Phone_number   b) Name   c) Date_of_birth   d)All of the mentioned   **Answer: a**

Explanation: Name and Date_of_birth cannot hold more than 1 value.

9. Which of the following is a single valued attribute

a) Register_number   b)Address   c) SUBJECT_TAKEN   d) Reference   **Answer: a**

10. In a relation between the entities the type and condition of the relation should be specified. That is called as_____attribute.

a) Desciptive   b) Derived   c) Recursive   d) Relative   **Answer: a**

Explanation: Consider the entity sets student and section, which participate in a relationship set takes. We may wish to store a descriptive attribute grade with the relationship to record the grade that a student got in the class.

Topic name :Constraints

1. _____ express the number of entities to which another entity can be associated via a relationship set.

a) Mapping Cardinality   b) Relational Cardinality

c) Participation Constraints   d) None of the mentioned   **Answer: a**

Explanation: Mapping cardinality is also called as cardinality ratio.

2. An entity in A is associated with at most one entity in B, and an entity in B is associated with at most one entity in A.This is called as

a) One-to-many   b) One-to-one   c) Many-to-many   d) Many-to-one   **Answer: b**

Explanation: Here one entity in one set is related to one one entity in other set.

3. An entity in A is associated with at most one entity in B. An entity in B, however, can be associated with any number (zero or more) of entities in A.

a) One-to-many b) One-to-one c) Many-to-many d) Many-to-one   **Answer: d**

Explanation: Here more than one entity in one set is related to one one entity in other set.

4. Data integrity constraints are used to:

a) Control who is allowed access to the data

b) Ensure that duplicate records are not entered into the table

c) Improve the quality of data entered for a specific property

d) Prevent users from changing the values stored in the table   **Answer: c**

Explanation: The data entered will be in a particular cell (i.e., table column).ow to Install Unity on Ubuntu 18.04 [Complete Proced

5. Establishing limits on allowable property values, and specifying a set of acceptable, predefined options that can be assigned to a property are examples of:

a) Attributes   b) Data integrity constraints

c) Method constraints   d) Referential integrity constraints   **Answer: b**

Explanation: Only particular value satisfying the constraints are entered in the column.

6. Which of the following can be addressed by enforcing a referential integrity constraint?

a) All phone numbers must include the area code

b) Certain fields are required (such as the email address, or phone number) before the record is accepted

c) Information on the customer must be known before anything can be sold to that customer

d) Then entering an order quantity, the user must input a number and not some text (i.e., 12 rather than 'a dozen')   **Answer: c**

7. _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations.

a) Entity Integrity Constraints   b) Referential Integrity Constraints

c) Domain Integrity Constraints   d) Domain Constraints   **Answer: b**

Explanation: None.

8. Which one of the following uniquely identifies the elements in the relation?

a) Secondary Key b) Primary key c) Foreign key d) Composite key **Answer: b**

Explanation: Primary key checks for not null and uniqueness constraint.

9. Drop Table cannot be used to drop a table referenced by a _____ constraint.

a) Local Key b) Primary Key c) Composite Key d) Foreign Key   **Answer: d**

Explanation: Foreign key is used when primary key of one relation is used in another relation.

10. _____ is preferred method for enforcing data integrity

a) Constraints   b) Stored Procedure c) Triggers d) Cursors   Answer: a

Explanation: Constraints are specified to restrict entries in the relation.

Topic name :Entity-Relationship Diagrams

1. Which of the following gives a logical structure of the database graphically?

a) Entity-relationship diagram   b) Entity diagram

c) Database diagram   d) Architectural representation   **Answer: a**

Explanation: E-R diagrams are simple and clear—qualities that may well account in large part for the widespread use of the E-R model.

2. The entity relationship set is represented in E-R diagram as

a) Double diamonds   b) Undivided rectangles

c) Dashed lines   d) Diamond   **Answer: d**

Explanation: Dashed lines link attributes of a relationship set to the relationship set.

3. The Rectangles divided into two parts represents

a) Entity set   b) Relationship set

c) Attributes of a relationship set   d) Primary key   **Answer: a**

Explanation: The first part of the rectangle, contains the name of the entity set. The second part contains the names of all the attributes of the entity set.

4. Consider a directed line(->) from the relationship set advisor to both entity sets instructor and student. This indicates _____ cardinality

a) One to many   b) One to one   c) Many to many   d) Many to one **Answer: b**

Explanation: This indicates that an instructor may advise at most one student, and a student may have at most one advisor.

5. We indicate roles in E-R diagrams by labeling the lines that connect _____ to _____

a) Diamond , diamond   b) Rectangle, diamond

c) Rectangle, rectangle d) Diamond, rectangle   **Answer: d**

Explanation: Diamond represents a relationship set and rectangle represents a entity set.

6. An entity set that does not have sufficient attributes to form a primary key is termed a _____

a) Strong entity set b) Variant set c) Weak entity set d) Variable set **Answer: c**

Explanation: An entity set that has a primary key is termed a strong entity set.

7. For a weak entity set to be meaningful, it must be associated with another entity set, called the

a) Identifying set b) Owner set c)Neighbour set d) Strong entity set **Answer: a**

Explanation: Every weak entity must be associated with an identifying entity; that is, the weak entity set is said to be existence dependent on the identifying entity set. The identifying entity set is said to own the weak entity set that it identifies. It is also called as owner entity set.

8. Weak entity set is represented as

a) Underline b) Double line c) Double diamond d) Double rectangle **Answer: c**

Explanation: An entity set that has a primary key is termed a strong entity set.

9. If you were collecting and storing information about your music collection, an album would be considered a(n) _____

a) Relation b) Entity c) Instance d) Attribute   **Answer: b**

Explanation: An entity set is a logical container for instances of an entity type and instances of any type derived from that entity type.

10. What term is used to refer to a specific record in your music database; for instance; information stored about a specific album?

a) Relation   b) Instance   c) Table   d) Column   Answer: b

Explanation: The environment of database is said to be an instance. A database instance or an 'instance' is made up of the background processes needed by the database.

Topic Name ::Reduction to Relational Schemas

Consider the following relational schemas and answer the questions below

The section relation

Course_id	Sec_id	Semester	Year	Building
BIO-101	1	Spring	2010	Painter
CS-102	4	Summer	2009	Packyard
EE-201	3	Fall	2010	Watson
FIN-301	1	Spring	2011	Richard

The teaches relation

Id	Course_id	Sec_id	Semester	Year
1001	CS-101	1	Fall	2009
1002	EE-201	2	Spring	2010
1003	FIN-301	3	Fall	2009
1004	BIO-101	1	Summer	2011

1. Which one of the following can be treated as a primary key in teaches relation?
a) Id   b) Semester c) Sec_id   d) Year   **Answer: a**
Explanation: Here Id is the only attribute that has to have a unique entry.
2. The primary key in the section relation is   Answer: c
a) Course_id   b) Sec_id c) Both Course_id and Sec_id d) All the attributes
Explanation: Both the entries has unique entry.
3). SELECT * FROM teaches WHERE Sec_id = 'CS-101';
Which of the following Id is selected for the following query?
a) 1003   b) 1001   c) None   d) Error message appears   **Answer: d**
Explanation: The value CS-101 matches the Course_id but not Id.
4.SELECT Id, Course_id, Building FROM SECTION s AND teaches t WHERE t.year=2009;
Which of the following Id are displayed?
a) 1003   b) 1001 c) Both 1003 and 1001   d) Error message appears **Answer: c**
Explanation: Two rows are select in the above query.
5. The query which selects the Course_id 'CS-101' from the section relation is
a) Select Course_id from section where Building = 'Richard';
b) Select Course_id from section where Year = '2009';
c) Select Course_id from teaches where Building = 'Packyard';
d) Select Course_id from section where Sec_id = '3';   **Answer: b**
Explanation: The year '2009' should be selected from the section relation.
6.CREATE TABLE SECTION
(Course_id VARCHAR (8),
Sec_id VARCHAR (8),
Semester VARCHAR (6),
YEAR NUMERIC (4,0),
Building NUMERIC (15),
PRIMARY KEY (course id, sec id, semester, YEAR),
FOREIGN KEY (course id) REFERENCES course);
Which of the following has an error in the above create table for the relation section
a) Primary key (course id, sec id, semester, year)
b) Foreign key (course id) references course
c) Year numeric (4,0)   d) Building numeric (15)   **Answer: d**
Explanation: It should be replaced by Year Building varchar (15).
7. The relation with primary key can be created using
a) Create table instructor (Id, Name)
b) Create table instructor (Id, Name, primary key(name))
c) Create table instructor (Id, Name, primary key (Id))

d) Create table instructor (Id unique, Name)   **Answer: c**

Explanation: The value Name cannot be a primary key.

8. How can the values in the relation teaches be deleted?

a) Drop table teaches;   b) Delete from teaches;

c) Purge table teaches;   d) Delete from teaches where Id ='Null'; **Answer: b**

Explanation: Delete table cleans the entry from the table.

9. In the above teaches relation " Select * from teaches where Year = '2010'" displays how many rows?

a) 2   b) 4   c) 5 d) 1   **Answer: a**

Explanation: There are two tuples with the year is 2009.

10. The relation changes can be got back using _____ command

a) Flashback   b) Purge   c) Delete   d) Getback **Answer: a**

Explanation: Purge deletes the table and delete cleans the table entry.

Topic Name ::::Entity-Relationship Design Issues

1. Let us consider phone_number ,which can take single or several values . Treating phone_numberas an _____ permits instructors to have several phone numbers (including zero) associated with them.

a) Entity   b) Attribute   c) Relation   d) Value   **Answer: a**

Explanation: Treating a phone as an attribute phone_number implies that instructors have precisely one phone number each.

2. The total participation by entities is represented in E-R diagram as

a) Dashed line   b) Double line c) Double rectangle d) Circle **Answer: b**

Explanation: It is used to represent the relation between several attributes.

3. Given the basic ER and relational models, which of the following is INCORRECT?

a) An attribute of an entity can have more than one value

b) An attribute of an entity can be composite

c) In a row of a relational table, an attribute can have more than one value

d) In a row of a relational table, an attribute can have exactly one value or a NULL value

Answer: c

Explanation: It is possible to have several values for a single attribute provide it is a multi-valued attribute.

4. Which of the following indicates the maximum number of entities that can be involved in a relationship?

a) Minimum cardinality   b) Maximum cardinality

c) ERD   d) Greater Entity Count   **Answer: b**

Explanation: In SQL (Structured Query Language), the term cardinality refers to the uniqueness of data values contained in a particular column (attribute) of a database table. to Install Unity on Ubuntu 18.04 [Complete Procedure]

5. In E-R diagram generalization is represented by

a) Ellipse b) Dashed ellipse c) Rectangle d) Triangle   **Answer: d**

Explanation: Ellipse represents attributes, rectangle represents entity.

6. What is a relationship called when it is maintained between two entities?

a) Unary   b) Binary c) Ternary d) Quaternary   **Answer: b**

Explanation: Binary word usually represents two attributes.

7. Which of the following is a low level operator?

a) Insert   b) Update   c) Delete   d) Directory   **Answer: d**

Explanation: Directory is a low level to word on in file system.

8. Key to represent relationship between tables is called

a) Primary key   b) Secondary Key

c) Foreign Key   d) None of the mentioned   **Answer: c**

Explanation: Primary key of one relation used as an attribute in another relation is called foreign key.

9. A window into a portion of a database is

a) Schema   b) View   c) Query   d) Data dictionary   **Answer: b**

Explanation: View is a logical portion of a database which is needed by some users.

10. A primary key is combined with a foreign key creates

a) Parent-Child relation ship between the tables that connect them

b) Many to many relationship between the tables that connect them

c) Network model between the tables that connect them

d) None of the mentioned   **Answer: a**

Explanation: Using the two relationships mother and father provides us a record of a child's mother, even if we are not aware of the father's identity; a null value would be required if the ternary relationship parent is used. Using binary relationship sets is preferable in this case.

Topic name:: Normal Forms

1. In the _____ normal form, a composite attribute is converted to individual attributes.

a) First   b) Second c) Third   d) Fourth   **Answer: a**

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

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   **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   **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   **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 **Answer: a**

Explanation: Key is the basic element needed for the constraints.how to Install Unity on Ubuntu 18.04 [Complete Proc

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   **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   **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   **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   **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.

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   **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.

Topic Name ::: 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   **Answer: b**

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

2. Which of the following is not Armstrong's Axiom?

a) Reflexivity rule   b) Transitivity rule

c) Pseudotransitivity rule   d) Augmentation rule   **Answer: c**

Explanation: It is possible to use Armstrong's axioms to prove that Pseudotransitivity rule is sound.

3. The relation employee(ID,name,street,Credit,street,city,salary) is decomposed into employee1 (ID, name)

employee2 (name, street, city, salary)

This type of decomposition is called

a) Lossless decomposition   b) Lossless-join decomposition

c) All of the mentioned   d) None of the mentioned   **Answer: d**

Explanation: Lossy-join decomposition is the decomposition used here .How to Install Unity on Ubuntu 18.04 [Complete Proced

4. Inst_dept (ID, name, salary, dept name, building, budget) is decomposed into

instructor (ID, name, dept name, salary)

department (dept name, building, budget)

This comes under

a) Lossy-join decomposition   b) Lossy decomposition   **Answer: d**

c) Lossless-join decomposition   d) Both Lossy and Lossy-join decomposition

Explanation: Lossy-join decomposition is the decomposition used here .

5. There are two functional dependencies with the same set of attributes on the left side of the arrow:

A->BC

A->B

This can be combined as

a) A->BC   b) A->B   c) B->C   d) None of the mentioned   **Answer: a**

Explanation: This can be computed as the canonical cover.

6. Consider a relation R(A,B,C,D,E) with the following functional dependencies:

ABC -> DE and

D -> AB

The number of superkeys of R is:

a) 2   b) 7   c) 10   d) 12   **Answer: c**

Explanation: A superkey is a combination of columns that uniquely identifies any row within a relational database management system (RDBMS) table.

7. Suppose we wish to find the ID's of the employees that are managed by people who are managed by the employee with ID 123. Here are two possible queries:

I.SELECT ee.empID

  FROM Emps ee, Emps ff

  WHERE ee.mgrID = ff.empID AND ff.mgrID = 123;

II.SELECT empID

  FROM Emps

  WHERE mgrID IN

  (SELECT empID FROM Emps WHERE mgrID = 123);

Which, if any, of the two queries above will correctly (in SQL2) get the desired set of employee ID's?

a) Both I and II   b) I only   c) II only   d) Neither I nor I   **Answer: a**

Explanation: The query can be satisfied by any of the two options.

8. Suppose relation R(A,B) currently has tuples {(1,2), (1,3), (3,4)} and relation S(B,C) currently has {(2,5), (4,6), (7,8)}. Then the number of tuples in the result of the SQL query:

<i>SELECT *

FROM R NATURAL OUTER JOIN S; </i>IS:

a) 2 b) 4 c) 6 d) None of the mentioned **Answer: a**

Explanation: The SQL NATURAL JOIN is a type of EQUI JOIN and is structured in such a way that, columns with same name of associate tables will appear once only.

9. Suppose now that R(A,B) and S(A,B) are two relations with r and s tuples, respectively (again, not necessarily distinct). If m is the number of (not necessarily distinct) tuples in the result of the SQL query:

        R intersect S;

Then which of the following is the most restrictive, correct condition on the value of m?

a) m = min(r,s)   b) 0 <= m <= r + s

c) min(r,s) <= m <= max(r,s)   d) 0 <= m <= min(r,s)   **Answer: d**

Explanation: The value of m must lie between the min value of r and s and 0.

10. Suppose relation R(A,B,C,D,E) has the following functional dependencies:

A -> B

B -> C

BC -> A

A -> D

E -> A

D -> E

Which of the following is not a key?

a) A b) E c) B, C d) D **Answer: c**

Explanation: Here the keys are not formed by B and C.