



BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Bachelor of Technology in Computer Science & Engineering

Course Name – Database Management System

Course Code - BCSE501

Semester / Year - Semester V

Time allotted : 85 Minutes

Full Marks : 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 70=70

1. (Answer any Seventy)

(i) Which one represents a relationship among a set of values in a table?

- | | |
|-----------|----------|
| a) Column | b) Key |
| c) Row | d) Entry |

(ii) Which of the following refers to the attributes of a table?

- | | |
|-----------|-----------|
| a) Record | b) Column |
| c) Tuple | d) Key |

(iii) Course(course_id,sec_id,semester) Here the (course_id,sec_id and semester) and course respectively are

- | | |
|-------------------------|-------------------------|
| a) Relations, Attribute | b) Attributes, Relation |
| c) Tuple, Relation | d) Tuple, Attributes |

(iv) A domain is atomic if elements of the domain are considered to be which units?

- | | |
|--------------|----------------|
| a) Different | b) Indivisible |
| c) Constant | d) Divisible |

(v) 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

(vi) 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

(vii) Which one of the following attribute can be taken as a primary key?

a) Name

b) Street

c) ID

d) Department

(viii) Which of the following is not a consequence of concurrent operations?

a) Lost update problem

b) Update anomaly

c) Unrepeatable read.

d) Dirty read

(ix) Which of the following gives a logical structure of the database graphically?

a) Database diagram

b) Architectural representation

c) Entity-relationship diagram

d) Entity diagram

(x) The entity relationship set is represented in E-R diagram as

a) Diamond

b) Undivided rectangles

c) Dashed lines

d) Double diamonds

(xi) We indicate roles in E-R diagrams by labeling the lines that connect

_____ to _____

a) Diamond, rectangle

b) Rectangle, diamond

c) Rectangle, rectangle

d) Diamond, diamond

(xii) For a weak entity set to be meaningful, it must be associated with another entity set, called the

a) Owner set

b) Identifying set

c) Neighbor set

d) Strong entity set

(xiii) Which one of the following is a procedural language?

a) Domain relational calculus

b) Tuple relational calculus

c) Relational algebra

d) Query language

(xiv) 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

(xv) 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

(xvi) Which one 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

(xvii) 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

(xviii) In SQL the word 'natural' can be used with which of the following?

a) inner join

b) full outer join

c) right outer join

d) left outer join

(xix) `SELECT * FROM employee` What type of statement is this?

- a) DDL
- b) DML
- c) View
- d) Integrity constraint

(xx) 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

(xxi) `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

(xxii) Which update violations are disallowed?

- a) Integrity constraints
- b) Transaction control
- c) Authorization
- d) DDL constraints

(xxiii) 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`

(xxiv) Which clause is used to list the attributes desired in the result of a query?

- a) `Where`
- b) `Select`
- c) `From`
- d) `Distinct`

(xxv) `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

(xxvi) The union operation is represented by

a) ?

b) U

c) -

d) *

(xxvii) The union operation automatically performs which operation unlike the select clause?

a) Adds tuples

b) Eliminates unique tuples

c) Adds common tuples

d) Eliminates duplicate

(xxviii) The number of attributes in relation is called as its

a) Cardinality

b) Degree

c) Tuples

d) Entity

(xxix) Which clause is an additional filter that is applied to the result?

a) Select

b) Group-by

c) Having

d) order-by

(xxx) 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) null

c) empty space

d) _

(xxxi) Using which of the following clause retains only one copy of such identical tuples?

a) Distinct

b) Where

c) Unique

d) Null

(xxxii) For like predicate which of the following is true? i) % matches zero or

more characters ii) _ matches exactly one character

- a) i & ii
- b) ii only
- c) i only
- d) none of these

(xxxiii) 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)

(xxxiv) Which aggregate functions ignore null values in their input collection?

- a) Count(attribute)
- b) Count(*)
- c) Avg
- d) Sum

(xxxv) A Boolean data type that can take what value other than true and false?

- a) 1
- b) 0
- c) Null
- d) unknown

(xxxvi) Which connective tests for set membership, where the set is a collection of values produced by a select clause?

- a) Or
- b) Not in
- c) In
- d) Not or

(xxxvii) 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.

- a) Where, having
- b) Having, where
- c) Group by, having
- d) Group by, where

(xxxviii) Which of the following creates a temporary relation for the query on which it is defined?

- a) With
- b) From
- c) Where
- d) Select

(xxxix) 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

(xl) 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

(xli) Which 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

(xlii) Which of the join operations do not preserve non matched tuples?

- a) Left outer join
- b) Right outer join
- c) Inner join
- d) Outer join

(xliii) 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) Set join

(xliv) How many tables may be included with a join?

- a) One
- b) Two
- c) Three
- d) All of the mentioned

(xlv) How many join types in join condition:

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

(xlvi) 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:

- a) Left outer join
- b) Right outer join
- c) Full outer join
- d) Half outer join

(xlvii) 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”;

(xlviii) 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 be determined

(xlix) Which of the following terms does refer to the correctness and completeness of the data in a database?

- a) Data security
- b) Data constraint
- c) Data independence
- d) Data integrity

(l) A table can be logically connected to another table by defining a

- a) Super key
- b) Candidate key
- c) Primary key
- d) Unique key

(li) Ensuring isolation property is the responsibility of the

- a) Recovery-management component of the DBMS
- b) Concurrency-control component of the DBMS
- c) Transaction-management component of the DBMS
- d) Buffer management component in the DBMS

(lii) Search algorithms that use an index are referred to as

- a) Index Search
- b) Linear search
- c) File scan
- d) Access paths

(liii) In order to undo the work of transaction after last commit, which one should be used?

- a) Redo
- b) Commit
- c) Undo
- d) Rollback

(liv) In order to maintain the consistency during transactions, database provides

- a) Redo
- b) Atomic
- c) Flashback
- d) Retain

(lv) A transaction completes its execution is said to be

- a) Queried
- b) Aborted
- c) Committed
- d) Failed

(lvi) To include integrity constraint in an existing relation use :

- a) Create table
- b) Modify table
- c) Alter table
- d) Update table

(lvii) Relational Algebra is what type of 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

(lviii) 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)

(lix) Which operation, denoted by \ominus , allows us to find tuples that are in one relation but are not in another?

- a) Union
- b) Set-difference
- c) Difference
- d) Intersection

(lx) Which is a unary operation:

- a) Selection operation
- b) Primitive operation
- c) Projection operation
- d) Generalized selection

(lxi) Find the ID, name, dept name, salary for instructors whose salary is greater than \$80,000.

- a) $\{t \mid t \in \text{instructor} \wedge t[\text{salary}] > 80000\}$
- b) $\pi_{t} \pi_{r} (Q(t))$
- c) $\{t \mid \exists s \in \text{instructor} (t[\text{ID}] = s[\text{ID}] \wedge s[\text{salary}] > 80000)\}$
- d) None of the mentioned

(lxii) $\{t \mid \exists s \in \text{instructor} (t[\text{name}] = s[\text{name}] \wedge \exists u \in \text{department} (u[\text{dept name}] = s[\text{dept name}] \wedge u[\text{building}] = \text{"Watson"}))\}$ 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 department whose instructor and building is Watson
- d) Returns the building name of all the departments

(lxiii) "Find all students who have taken all courses offered in the Biology department." The expressions that matches this sentence is :

- a) $\pi_{t} \pi_{r} (Q(t))$
- b) $\pi_{t} \pi_{r} (Q(t))$
- c) $\neg \pi_{t} \pi_{r} (Q(t))$
- d) $\sim \pi_{t} \pi_{r} (Q(t))$

(lxiv) Which of the following is the comparison operator in tuple relational calculus

- a) \neq
- b) $=$
- c) $<$
- d) All of the mentioned

(lxv) In domain relational calculus “there exist” can be expressed as

- a) $(P1(x))$
- b) $(P1(x)) ? x$
- c) $\forall x (P1(x))$
- d) $? x (P1(x))$

(lxvi) A set of possible data values is called

- a) Attribute
- b) Degree
- c) Tuple
- d) Domain

(lxvii) What is an Entity?

- a) Object of relation
- b) Present working model
- c) Thing in real world
- d) Model of relation

(lxviii) What function an entity plays in a relationship?

- a) Participation
- b) Position
- c) Role
- d) Instance

(lxix) In a relation between the entities the type and condition of the relation should be specified. What type of attribute it is?

- a) Descriptive
- b) Derived
- c) Recursive
- d) Relative

(lxx) 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’)