

QUESTION BANK

4th SEMESTER

CSL-4206 -Database Management System

(100 QUESTIONS 1 MARK EACH)

Q1. The attributes of relationship teaches in teacher teaches course should be

- a) teacher code, teacher name, dept, phone no
- b) course no, course name, semester offered, credits
- c) **teacher code, course no, semester no**
- d) teacher code, course no, teacher name, dept, phone no

Q2. A pilot can fly three types of planes and a plane can be piloted by any qualified pilot. The pilot-plane type relationship is

- a) **N:3**
- b) 3:N
- c) 1:3
- d) 3:1

Q3. Given the following relation :

vendor order (vendor no, order no, vendor name, qty supplied , price/unit)
the second normal form relations are

- a) vendor (vendor no, vendor name)
qty (qty supplied, price/unit)
order (order no, qty supplied)
- b) vendor (vendor no, vendor name)
order (order no, qty supplied, price/unit)
- c) **vendor (vendor no, vendor name)
order (order no, qty supplied, price/unit)
vendor order (vendor no, order no)**
- d) vendor (vendor no, vendor name, qty supplied, price/unit)
vendor order (order no, vendor no)

Q3. Given the following relation it is not 3 NF because Student (roll no, name, course no, course max. marks, year of study, address)

- a) it is not in 2 NF
- b) it does not have composite key
- c) **non-key attributes course no and course max. marks are functionally dependent**
- d) it has more than 3 non-key attributes

Q4. A 3 NF relation is converted to BCNF by

- a) removing composite keys
- b) removing multivalued dependencies
- c) **dependent attributes of overlapping composite keys are put in a separate relation**
- d) dependent non-key attributes are put in a separate table

Q5. BCNF is needed because

- a) otherwise tuples may be duplicated
- b) when a data is deleted tuples may be lost
- c) updating is otherwise difficult
- d) **when there is dependent attributes in two possible composite keys one of the attributes is unnecessarily duplicated in the tuples**

- Q6. The referential integrity rule requires that
- every null foreign key value must reference an existing primary key value.
 - B. it makes it possible for an attribute to have a corresponding value.
 - every non-null foreign key value must reference an existing primary key value.**
 - it makes it possible to delete a row in one table whose primary key does not have a matching foreign key value in another table.
- Q7. Within a table, the primary key must be unique so that it will identify each row. When this is the case, the table is said to exhibit _____.
- referential integrity.
 - entity integrity.**
 - enforced integrity.
 - all of the above
- Q8. When designing a new database, it is a good idea to
- avoid data redundancy.**
 - include redundant fields.
 - include a common field in all tables.
 - use composite keys.
- Q9. Database designers employ data models as communications tools to facilitate the interaction among
- the designers.
 - the applications programmers.
 - the users.
 - all of the above.**
- Q10. When making corrections you would use the following command
- CHANGE PRODUCT SET P_INDATE = '01/18/2002' WHERE P_CODE = '13-Q2/P2';
ROLLBACK PRODUCT
 - SET P_INDATE = '01/18/2002' WHERE P_CODE = '13-Q2/P2';
EDIT PRODUCT
 - SET P_INDATE = '01/18/2002' WHERE P_CODE = '13-Q2/P2';
UPDATE PRODUCT
 - SET P_INDATE = '01/18/2002' WHERE P_CODE = '13-Q2/P2';**
- Q11. To remove the value 2238/QPD from the product table you must use the following command
- DELETE FROM PRODUCT WHERE P_CODE = '2238/QPD';**
 - REMOVE FROM PRODUCT WHERE P_CODE = '2238/QPD';
 - ERASE FROM PRODUCT WHERE P_CODE = '2238/QPD';
 - ROLLBACK FROM PRODUCT WHERE P_CODE = '2238/QPD';
- Q12. To select partial table contents you must use the command
- SELECT <column(s)> FROM <Table name> WHERE <item>;
 - LIST <column(s)> FROM <Table name> WHERE <Conditions>;
 - SELECT <column(s)> FROM <Table name> WHERE <Conditions>;**
 - None of these**
- Q13. Which of the following is not one of the three stages in planning a database?
- Backup and recovery**
 - Implementation
 - Establishing requirements
 - Designing the database
- Q14. Which of the following are the roles of the Database Administrator:
- Managing security issues
 - Storage structure definition
 - Develop application programs
 - Take backups of the database
- I

- b) I,II,III
- c) I,II,IV
- d) All of these

Q15. Which of the following are valid column constraints:

- A. NULL
 - B. DISTINCT
 - C CHECK
 - D. FOREIGN KEY
- a) A
 - b) C
 - c) C, D
 - d) All of the above

Q16. The rule that requires that a foreign key value cannot be entered in one table unless it matches an existing primary key in another table

- a) **referential integrity**
- b) domain integrity.
- c) entity integrity constraint.
- d) a data validation constraint.

Q17. Review the following output :

```
DEPARTMENTS
-----
10 ACCOUNTING in NEW YORK
20 RESEARCH in DALLAS
30 SALES in CHICAGO
40 OPERATIONS in BOSTON
```

which of the following SQL statements likely produced the output above:

- a) **select deptno || ' ' || dname || ' in ' || loc Departments from dept;**
- b) select deptno || " " || dname || " in " || loc DEPARTMENT from dept;
- c) select deptno || ' ' || 'dname' || ' in ' || loc DEPARTMENT from dept;
- d) select dname || ' ' || deptno || in || loc departments from dept;

Q18. NVL Function

- a) **Converts null to an actual value**
- b) Converts date to an character data type.
- c) Converts null to numbers.
- d) Converts numbers to a null value.

Q19. Relational Algebra is a _____ query language that takes two relation as input and produces another relation as output of the query.

- a) Relational
- b) Structural
- c) **Procedural**
- d) Fundamental

Q20. 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

Q21. 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
- Q22. In precedence of set operators the expression is evaluated from
- Left to left
 - Left to right**
 - Right to left
 - From user specification
- Q23. Which of the following are introduced to reduce the overheads caused by the log-based recovery?
- Checkpoints
 - Indices
 - Deadlocks
 - Locks**
- Q24. Consider money is transferred from (1) account-A to account-B and (2) account-B to account-A. Which of the following form a transaction ?
- Only 1
 - Only 2
 - Both 1 and 2 individually**
 - Either 1 or 2
- Q25. The property of normalization of relations which guarantees that functional dependencies are represented in separate relations after decomposition is classified as
- nonadditive join property
 - independency reservation property
 - dependency preservation property**
 - additive join property
- Q26. The joining property which guarantees that spurious tuple generation problem is not created after decomposition is called
- lossless join property
 - nonadditive join property
 - additive join property
 - both a and b**
- Q27. The person who implements the specifications of the database programs is considered as
- software engineers
 - application programmers
 - software developers
 - all of above**
- Q28. The users that maintain databases with the help of ready made program packages are considered as
- standalone users**
 - canned users
 - conceptual transactions
 - sophisticated end users
- Q29. Consider a schema $R(A, B, C, D)$ and functional dependencies $A \rightarrow B$ and $C \rightarrow D$. Then the decomposition of R into $R_1(A, B)$ and $R_2(C, D)$ is
- dependency preserving and loss less join
 - loss less join but not dependency preserving
 - dependency preserving but not loss less join**
 - not dependency preserving and not loss less join
- Q30. Given the basic ER and relational models, which of the following is INCORRECT?
- An attributes of an entity can have more that one value
 - An attribute of an entity can be composite
 - In a row of a relational table, an attribute can have more than one value**
 - In a row of a relational table, an attribute can have exactly one value or a NULL value
- Q31. Thoma's-write rule is _____.

- a) Two phase locking protocol
- b) Timestamp ordering protocol**
- c) One phase locking protocol
- d) Sliding window protocol

Q32. Value that appears in one relation for a given set of attributes also appears for a certain set of attributes in another relation.

- a) Logical Integrity
- b) Referential Integrity**
- c) Domain Integrity
- d) Data Integrity

Q33. The SQL expression `Select distinct T, branch_name from branch T, branch S where T.assets > S.assets and S.branch_city= "Mumbai"` finds the names of

- a) All branches that have greater assets than some branch located in Mumbai.**
- b) All branches that have greater assets than all branches in Mumbai.
- c) The branch that has greatest asset in Mumbai.
- d) Any branch that has greater assets than any branch in Mumbai.

Q34. Match the following :

- (a) Create (i) The E-R Model
- (b) Select (ii) Relationship Model
- (c) Rectangle (iii) DDL
- (d) Record (iv) DML

Codes :

- (a) (b) (c) (d)
- a) (iii) (iv) (i) (ii)**
- b) (iv) (iii) (ii) (i)
- c) (iv) (iii) (i) (ii)
- d) (iii) (iv) (ii) (i)

Q35. command used to select only one copy of each set of duplicable rows :

- a) Select Distant**
- b) Select Unique
- c) Select Different
- d) None

Q36. Which command is used to remove a table or index from the database in SQL?

- a) Delete Table
- b) Drop table**
- c) Erase Table
- d) None of above

Q37. A schema describes

- a) Record & files
- b) data elements
- c) record relationships
- d) all of the above**

Q38. Usage of Preemption and Transaction Rollback prevents _____.

- a) Unauthorised usage of data file
- b) Deadlock situation**
- c) Data manipulation
- d) File pre-emption

Q39. Which level of Abstraction describes how data are stored in the data base ?

- a) Physical level**
- b) View level
- c) Abstraction level
- d) Logical level

Q40. Third normal form is based on the concept of _____.

- a) Closure Dependency
- b) Transitive Dependency**
- c) Normal Dependency
- d) Functional Dependency

Q41. The problem that occurs when one transaction updates a database item and then the transaction fails for some reason is _____.

- a) Temporary Select Problem
- b) Temporary Modify Problem
- c) Dirty Read Problem**
- d) None

Q42. If D_1, D_2, \dots, D_n are domains in a relational model, then the relation is a table, which is a subset of

- a) $D_1 + D_2 + \dots + D_n$
- b) $D_1 \times D_2 \times \dots \times D_n$**
- c) $D_1 \cup D_2 \cup \dots \cup D_n$
- d) $D_1 - D_2 - \dots - D_n$

Q43. Which of the following is not a type of Database Management System ?

- a) Hierarchical
- b) Network
- c) Relational
- d) Sequential**

Q44. The "PROJECT" operator of a relational algebra creates a new table that has always

- a) More columns than columns in original table
- b) More rows than original table
- c) Same number of rows as the original table**
- d) Same number of columns as the original table

Q45. The employee information of an Organization is stored in the relation : Employee (name, sex, salary, deptname) Consider the following SQL query Select deptname from Employee Where sex = 'M' group by deptname having avg (salary) > {select avg (salary) from Employee} Output of the given query corresponds to

- a) Average salary of employee more than average salary of the organization.
- b) Average salary less than average salary of the organization.
- c) Average salary of employee equal to average salary of the organization
- d) Average salary of male employees in a department is more than average salary of the organization**

Q46. For a database relation $R(a, b, c, d)$ where the domains of a, b, c, d include only the atomic values. The functional dependency $a \rightarrow c, b \rightarrow d$ holds in the following relation

- a) In 1NF not in 2NF
- b) In 2NF not in 3NF**
- c) In 3NF
- d) In 1NF

Q47. The employee information in a company is stored in the relation Employee (name, sex, salary, deptName)

Consider the following SQL query

Select deptName

From Employee

Where sex = 'M'

Group by deptName

Having avg(salary) >

(select avg (salary) from Employee)

It returns the names of the department in which

- a) the average salary is more than the average salary in the company
- b) the average salary of male employees is more than the average salary of all male employees in the

- company
- c) the average salary of male employees is more than the average salary of employees in the same department.
- d) **the average salary of male employees is more than the average salary in the company**
- Q48. _____ if $X \rightarrow Y$ and $WY \rightarrow Z$ are given then $XW \rightarrow Z$ is true
- Pseudo transitivity property**
 - Transitive property
 - Union property
 - Decomposition property
- Q49. When a regular type entity type contains a multi valued attributes , one must
- Create a single relation with multiple lines for each instance of the multi-valued attribute.
 - Create two new relations, one containing the multi-valued attribute.**
 - Create two new relations, both containing the multi-valued attribute.
 - Create three new relations.
- Q50. Which normal form addresses the structure of an isolated table?
- 1NF**
 - 2NF
 - 3NF
 - 4NF and 5NF
- Q51. Which of the following statements is/are true about the type of normal forms?
- If all entries in table are scalar-valued, then it is said to be in first normal form.
 - Second normal form represents that no non-key field functionally depends on any other non-key field.
 - A table is in third normal form if all non-key attributes are functionally dependent on the entire primary key.
- Only (I) above**
 - Only (II) above
 - Both (I) and (II) above
 - Both (I) and (III) above
- Q52. Consider the universal relation $R = \{A, B, C, D, E, F, G, H, I, J\}$ and the set of functional dependencies $F = \{ \{A, B\} \rightarrow \{C\}, \{A\} \rightarrow \{D, E\}, \{B\} \rightarrow \{F\}, \{F\} \rightarrow \{G, H\}, \{D\} \rightarrow \{I, J\} \}$. What is the key for R?
- AE
 - EC
 - AB**
 - AD
- Q53. Which of the following statements about normal forms is false?
- BCNF is stricter than 3NF.
 - Lossless decomposition into 3NF is always possible.
 - Lossless decomposition into BCNF is always possible.**
 - Any relation with two attributes is in BCNF.
- Q54. The normalization steps are based on following important concepts____
- Dependence among attributes in a relation
 - Identification of an attribute or a set of attributes as the key of a relation
 - Multi-valued dependency among between attributes
 - All of the above**
- Q55. A table is in FOURTH NORMAL FORM(4NF) if:
- All attributes must be dependent on the primary key, and must be dependent on each other.
 - All attributes must be dependent on the primary key, and must be independent on each other.
 - No row can contain two or more multi-valued facts about an entity.
 - Both b and c.**
- Q56. A relation that contains no multi-valued attributes and has non-key attributes solely dependent on the primary key, but contains transitive dependencies is in which normal form:

- a) First
- b) Second**
- c) Third
- d) Fourth

Q57. A functional dependency between two or more key attributes is called a:

- a) Partial functional dependency
- b) Partial non-key dependency
- c) Transitive dependency**
- d) Partial Transitive dependency

Q58. _____ is also called as flat file.

- a) 2NF
- b) 3NF
- c) 1NF**
- d) BCNF

Q59. Which of the following is a procedure for acquiring the necessary locks for a transaction where all necessary locks are acquired before any are released?

- a) Record controller
- b) Exclusive lock
- c) Authorization rule
- d) Two phase lock**

Q60. The log is a sequence of _____, recording all the update activities in the database.

- a) Log records**
- b) Records
- c) Entries
- d) Redo

Q61. Which of the following are introduced to reduce the overheads caused by the log-based recovery?

- a) Checkpoints
- b) Indices
- c) Deadlocks
- d) Locks**

Q62. Which of the following protocols ensures conflict serializability and safety from deadlocks?

- a) Two-phase locking protocol
- b) Time-stamp ordering protocol**
- c) Graph based protocol
- d) Both (a) and (b) above

Q63. If transaction T_i gets an explicit lock on the file F_c in exclusive mode, then it has an ----- on all the records belonging to that file.

- a) Explicit lock in exclusive mode
- b) Implicit lock in shared mode
- c) Explicit lock in shared mode.
- d) Implicit lock in exclusive mode**

Q64. Which refers to a property of computer to run several operation simultaneously and possible as computers await response of each other

- a) Concurrency**
- b) Deadlock
- c) Backup
- d) Recovery

Q65. All lock information is managed by a ____, which is responsible for assigning and policing the locks used by the transactions.

- a) Scheduler
- b) DBMS
- c) **Lock manager**
- d) Locking agent

Q67. In entity relationship, Y is the dominant Entity and X is a subordinate entity. Then which of the following is/are correct?

- a) Operationally, if y is deleted, so is x
- b) X is existence dependent on y
- c) **Operationally, x is deleted, so is y**
- d) Operationally, x is deleted, y remains the same

Q68. E-R modeling technique is a

- a) **Top-down approach**
- b) Bottom-up approach
- c) Left-right approach
- d) None of the above

Q69. In E-R diagram ellipses represent

- a) Entity sets
- b) Relationship among entity sets
- c) **Attributes**
- d) Link between attributes and entity sets

Q70. Relation produced from an E-R model will always be in

- a) First normal form
- b) Second normal form
- c) **Third normal form**
- d) Fourth normal form

Q71. The entity-relationship model comes under

- a) **Object based logical model**
- b) Record based logical model
- c) Physical data model
- d) None of the above

Q71. If every non-key attribute is functionally dependent on the primary key, then the relation will be

- a) First normal form
- b) Second normal form
- c) **Third normal form**
- d) Fourth normal form

Q72. Choose the most appropriate choice with respect to conceptual design

- a) Conceptual design is a documentation technique. Once the relation schemas are defined one can draw E-R diagram from the relation schemas for documentation
- b) Conceptual design needs data volume and processing to determine the size of the database
- c) Output of any conceptual design is an E-R diagram.
- d) **Conceptual design involves modeling the data requirements independent of the DBMS, operating system and the hardware.**

Q73. The SQL expression, Select distinct T.branch_name from branch T, branch S WHERE T.assests>S.assests and s.branch_city="DELHI" Finds the name of

- a) **All branches that have greater assests than some branches located in DELHI.**
- b) All branches that have greater assests than all branches located in DELHI
- c) The branches that has the greatest assests in DELHI
- d) Any branch that has greater assests than any branch located in DELHI

- Q74. Generally speaking, for a week entity set to be meaningful it must be part of a
- One-to-one relationship
 - One-to-many relationship**
 - Many-to-many relationship
 - None of the above
- Q75. The relational model, a tuple is equivalent to a
- Record**
 - Field
 - File
 - database
- Q76. Which of the following is not characteristic of a relational database model?
- Tables
 - Treelike structure**
 - Complex logical relationships
 - Records
- Q77. A data dictionary doesn't provide information about:
- Where data is located
 - The size of the disk storage device**
 - Who owns or is responsible for the data
 - How the data is used
- Q78. SQL is used for:
- Creating, managing and deleting tables and manage the relationships among the stored data.
 - Generating queries, organizing, managing and retrieving data stored in a database.
 - Maintaining data integrity and coordinate data sharing.
- 1 and 2
 - 2 and 3
 - 1, 2 and 3
 - None of the above
- Q79. With SQL, how do you select all the records from a table named "Persons" where the value of the column "FirstName" starts with an "a"?
- SELECT * FROM Persons WHERE FirstName LIKE '%a'
 - SELECT * FROM Persons WHERE FirstName='%a%'
 - SELECT * FROM Persons WHERE FirstName='a'
 - SELECT * FROM Persons WHERE FirstName LIKE 'a%'
- Q80. To request that a Relational Database Management System prepare a result set showing a simple list of types of Cheeses sold in June so far, the best SQL command would be (circle the one best Answer):
- SELECT ALL Cheese.Name from Cheese_Sales
 - SELECT DISTINCT Cheese.Name from Cheese_Sales
 - SELECT ALL Cheese.Name from Cheese, Cheese_Sales WHERE Cheese_ID=Cheese_FK
 - SELECT DISTINCT Cheese.Name from Cheese, Cheese_Sales WHERE Cheese_ID=Cheese_FK**
- Q81. If we wanted to know what values appear more than 15 times in a table? Which select statement will best fit?
- Select some_column, count(*) from some_table group by count(*) where count(*) > 15;
 - Select some_column, count(*) from some_table group by count(*) having count(*) > 15;**
 - Both a and b
 - None of the above
- Q82. What is the fastest way to delete ALL OF THE ROWS in a table?
- Delete table table_name;
 - Rollback.**
 - Truncate table table_name;

d) All of the above.

Q83. Which of the following order of execution Oracle uses a SQL query containing the clause having, where, group by and group function is used?

- a) **Where, group by, group function, having**
- b) group by, having, where, group function
- c) having, group by, where, group function
- d) group function, having, group by, where

Q84. Consider the emp table having columns empno, ename Which of the following SQL query fetches empno that occur more than twice in the emp table

- a) select count(*) from emp group by empno having count(*) >2;
- b) select empno, count(*) from emp having count(*) >2;
- c) select empno, count(*) from emp where count(*) >2;
- d) select empno, count(*) from emp group by empno having count(*) >2;

Q85. When transaction Ti requests a data item currently held by Tj , Ti is allowed to wait only if it has a timestamp smaller than that of Tj (that is, Ti is older than Tj). Otherwise, Ti is rolled back (dies). This is

- a) **Wait-die**
- b) Wait-wound
- c) Wound-wait
- d) Wait

Q86. When transaction Ti requests a data item currently held by Tj , Ti is allowed to wait only if it has a timestamp larger than that of Tj (that is, Ti is younger than Tj). Otherwise, Tj is rolled back (Tj is wounded by Ti). This is

- a) Wait-die
- b) Wait-wound
- c) **Wound-wait**
- d) Wait

Q87. The situation where the lock waits only for a specified amount of time for another lock to be released is

- a) **Lock timeout**
- b) Wait-wound
- c) Timeout
- d) Wait

Q88. The deadlock in a set of transaction can be determined by

- a) **Read-only graph**
- b) Wait graph
- c) Wait-for graph
- d) All of the mentioned

Q89. A deadlock exists in the system if and only if the wait-for graph contains a _____.

- a) **Cycle**
- b) Direction
- c) Bi-direction
- d) Rotation

Q90. In the _____ scheme, a transaction that wants to update the database first creates a complete copy of the database.

- a) **Shadow copy**
- b) Shadow Paging
- c) Update log records

d) All of the mentioned

Q91. The _____ scheme uses a page table containing pointers to all pages; the page table itself and all updated pages are copied to a new location.

- a) Shadow copy
- b) **Shadow Paging**
- c) Update log records
- d) All of the mentioned

Q92. The deadlock state can be changed back to stable state by using _____ statement.

- a) Commit
- b) **Rollback**
- c) Savepoint
- d) Deadlock

Q93. 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

Q94. The following functional dependencies are given: AB→CD, AF→D, DE→F, C→G, F→E, G→A. Which one of the following options is false?

- a) {CF}={ACDEFG}
- b) **{BG}={ABCDG}**
- c) {AF}={ACDEFG}
- d) {AB}= {ABCDG}

Q95. From the following instance of relation schema R(A, B, C) we can conclude that:

A	B	C
1	1	1
1	1	0
2	3	2
2	3	2

- a) A functionally determines B and B functionally determines C.
- b) **A functionally determines B and B does not functionally determines C.**
- c) A does not functionally determines B and B does not functionally determine C.
- d) None of the above.

Q96. The relation schema Student Performance (name, courseNo., rollNo., grade) have the following functional dependencies:

name, courseNo. → grade

rollNo., courseNo. → grade

name → rollNo.

rollNo. → name

The highest normal form of this relation schema is:

- a) 2NF
- b) **3NF**
- c) BCNF
- d) 4NF

Q97. 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**

Q98. 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 above

Q99. Which of the following statements is correct regarding normalization?

- a) **It reduces update anomalies**
- b) It increases insertion anomalies
- c) It maximizes redundancy
- d) There is no zero normal form relations

Q100. What are the anomalies which can be present due to un-normalised relations?

- a) Selection
- b) **Insertion**
- c) Addition
- d) None