



DBMS SRM QBank Combined

Database Management Systems (SRM Institute of Science and Technology)



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15IT302J – DATABASE MANAGEMENT SYSTEMS

UNIT – 1

MULTIPLE CHOICE QUESTIONS

1. A ____ collection of interrelated data and a set of programs to access those data.
(A) Object oriented programming
(B) Database management systems
(C) Java programming
(D) Python programming
ANSWER: B
2. The ____ system stores permanent records in various files, and it needs different application programs to extract records from, and add records to, the appropriate files.
(A) Object oriented programming
(B) Database management
(C) File processing
(D) Python programming
ANSWER: C
3. A major purpose of a database system is to provide users with an ____ view of the data.
(A) Abstract
(B) Top down approach
(C) Bottom up approach
(D) Top
ANSWER: A
4. ____ is the lowest level of abstraction describes *how* the data are actually stored.
(A) top down level
(B) physical level
(C) logical level
(D) view level
ANSWER: B
5. ____ is the next-higher level of abstraction describes *what* data are stored in the database, and what relationships exist among those data.
(A) top down level
(B) physical level
(C) logical level
(D) view level
ANSWER: C
6. ____ is the highest level of abstraction describes only part of the entire database.
(A) top down level
(B) physical level
(C) logical level
(D) view level
ANSWER: D

7. The collection of information stored in the database at a particular moment is called an ____ of the database.

- (A) instance
- (B) encapsulation
- (C)operation
- (D)abstraction

ANSWER: A

8. The overall design of the database is called the database ____.

- (A) instance
- (B) encapsulation
- (C)Schema
- (D)abstraction

ANSWER: C

9. A database may also have several schemas at the view level, sometimes called _____ that describe different views of the database.

- (A) physical schema
- (B) logical schema
- (C)SubSchemas
- (D)view schema

ANSWER: C

10. A ____ provides a way to describe the design of a database at the physical, logical, and view levels.

- (A) physical schema
- (B) logical schema
- (C)SubSchemas
- (D)data model

ANSWER: D

11. The ____ model uses a collection of tables to represent both data and the relationships among those data.

- (A) relational
- (B) logical
- (C)object oriented
- (D)entity relationship

ANSWER: A

12.The _____ data model uses a collection of basic objects, called *entities*, and *relationships* among these objects.

- (A) entity-relationship
- (B) relational
- (C) object oriented
- (D) logical

ANSWER: A

13.The ____ is widely used to represent semistructured data.

- (A) hypertext markup language
- (B)Exiensible markup language
- (C) Java language

(D) python language

ANSWER: B

14. A _____ is a language that enables users to access or manipulate data as organized by the appropriate data model.

(A) data manipulation language

(B) data definition language

(C) extensible markup language

(D) hyertext mark up language

ANSWER: A

15. The portion of a DML that involves information retrieval is called a _____ language.

(A) data manipulation

(B) data definition

(C) extensible markup

(D) query

ANSWER: D

16. An _____ is any condition that the database must always satisfy.

(A) abstraction

(B) instance

(C) encapsulation

(D) assertion

ANSWER: D

17. _____ data manipulation language require a user to specify what data are needed and how to get those data.

(A) descriptive

(B) declarative

(C) procedural

(D) query

ANSWER: C

18. _____ data manipulation language require a user to specify *what* data are needed without specifying how to get those data.

(A) descriptive

(B) declarative

(C) procedural

(D) query

ANSWER: B

19. _____ stores metadata about the structure of the database in particular the schema of the database.

(A) data files

(B) data dictionary

(C) procedural data

(D) query information

ANSWER: B

20. _____ interprets DDL statements and records the definitions in the data dictionary.

(A) DDL interpreter

- (B)DML compiler
- (C)Query optimizer
- (D)Query evaluation engine

ANSWER: A

UNIT - 2

MULTIPLE CHOICE QUESTIONS

1. The ____ data model was developed to facilitate database design by allowing specification of an *enterprise schema* that represents the overall logical structure of a database.
 - (A) entity-relationship
 - (B) relational
 - (C) object oriented
 - (D) logical

ANSWER: A
2. An _____ is a set of entities of the same type that share the same properties, or attributes.
 - (A) Entity set
 - (B) Attribute set
 - (C) Instance set
 - (D) encapsulation

ANSWER: A
3. The same entity set participates in a relationship set more than once, in different roles. In this type of relationship set, sometimes called a _____.
 - (A) Recursive entity set
 - (B) Recursive attribute set
 - (C) Recursive Instance set
 - (D) Recursive relationship set

ANSWER: D
4. _____ attributes can be divided into sub parts.
 - (A) Composite
 - (B) Simple
 - (C) Multivalued
 - (D) Singlevalued

ANSWER: A
5. In _____ mapping cardinality, an entity in *A* is associated with *at most* one entity in *B* .
 - (A) Many to many
 - (B) One to one
 - (C) One to many
 - (D) Many to one

ANSWER: D
6. In ____ mapping cardinality , an entity in *A* is associated with any number (zero or more) of entities in *B*.
 - (A) Many to many
 - (B) One to one
 - (C) One to many

(D) Many to one

ANSWER: C

7. The participation of an entity set E in a relationship set R is said to be _____ if every entity in E participates in at least one relationship in R .

- (A) partial
- (B) total
- (C) collective
- (D) complete

ANSWER: B

8. If only some entities in E participate in relationships in R , the participation of entity set E in relationship R is said to be _____.

- (A) partial
- (B) total
- (C) collective
- (D) complete

ANSWER: A

9. The _____ key of an entity set allows us to distinguish among the various entities of the set.

- (A) super
- (B) foreign
- (C) primary
- (D) referential integrity

ANSWER: C

10. _____ indicate total participation of an entity in a relationship set in an ER diagram.

- (A) Rectangles
- (B) Lines
- (C) Dashed lines
- (D) Double lines

ANSWER: D

11. _____ represent the attributes of a relationship set in an ER diagram.

- (A) Rectangles
- (B) Lines
- (C) Dashed lines
- (D) Undivided rectangles

ANSWER: D

12. A _____ key is a set of one or more attributes that, taken collectively, allow us to identify uniquely a tuple in the relation.

- (A) super
- (B) foreign
- (C) primary
- (D) referential integrity

ANSWER: A

13. A relation, say r_1 , may include among its attributes the primary key of another relation, say r_2 . This attribute is called a _____ key from r_1 , referencing r_2 .

- (A) super
 - (B) foreign
 - (C) primary
 - (D) candidate
- ANSWER: B

14. _____ operation is used to return rows of the input relation that satisfy the predicate. In relational algebra operations.

- (A) selection
- (B) projection
- (C) union
- (D) cartesian product

ANSWER: A

15. _____ operation is used to Output specified attributes from all rows of the input relation. Remove duplicate tuples from the output in relational algebra operations.

- (A) selection
- (B) projection
- (C) union
- (D) cartesian product

ANSWER: B

16. _____ operation is used to Output pairs of rows from the two input relations that have the same value on all attributes that have the same name in relational algebra operations.

- (A) selection
- (B) projection
- (C) Natural join
- (D) cartesian product

ANSWER: C

17. _____ operation is used to Output all pairs of rows from the two input relations (regardless of whether or not they have the same values on common attributes) in relational algebra operations.

- (A) selection
- (B) projection
- (C) Natural join
- (D) cartesian product

ANSWER: D

18. _____ operation is used to Output the union of tuples from the two input relations in relational algebra operations.

- (A) selection
- (B) union
- (C) Natural join
- (D) cartesian product

ANSWER: B

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

- (A) selection
- (B) union

- (C) join
 - (D) cartesian product
- ANSWER: C

20. A _____ 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) super
 - (B) foriegn
 - (C) primary
 - (D) referential integrity
- ANSWER: D

UNIT 3

1. The keyword used in the select query to eliminate the duplicate tuples is
- a. ALL
 - b. DISTINCT
 - c. EXISTS
 - d. NULL.

ANS: DISTINCT

2. Which is the comparison operator
- a. BETWEEN
 - b. GREATER THAN
 - c. LESSER THAN
 - d. EQUAL TO.

ANS: BETWEEN

3. Tuples variables are defined in the from clause using
- a. AS CLAUSE
 - b. SELECT CLAUSE
 - c. WHERE CLAUSE
 - d. ALL CLAUSE.

ANS: AS CLAUSE

4. Which is the operator used to find out the matching between the string
- a. *
 - b. /
 - c. %
 - d. +

ANS: %

5. The set operation union is represented by
- a. ---
 - b. /
 - c. %
 - d. U

ANS: U

6. The intersection operator is used to get the _____ tuples.
- a. Different
 - b. Common
 - c. All
 - d. Repeating
- ANS: common

7. The aggregate function which is used to find the number of tuples in a table.

- a. COUNT b.MIN c. MAX d.AVG

ANS: COUNT

8. The number of attributes in relation is called as its
a.Cardinality b. Degree c.Tuples d.Entity

ANS: Degree

9. Which of the following is not an aggregate function?
a. Avg b. Sum c.With d.Min

ANS: With

10. The clause used to set condition in group by is

- a. WHERE b.HAVING c.FROMd.SELECT

ANS: HAVING

11. What can be used in the predicate to checkfor null values

- a. NULL b.ISNULL c.ISEMPY d.EMPTY

ANS: ISNULL

12. . 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

Ans. Null value

13. Views are otherwise called as

- a. VIRTUAL TABLE b.RELATION c.TABLE d.FALSE TABLE

ANS: VIRTUAL TABLE

14. The____condition allows a general predicate over the relations being joined.

- a. On b. Usingc. Set d. Where

Ans On

15. 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

Ans. Inner join

16. _____ 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.Relational constraints

ANS:Mapping Cardinality

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

- a.Secondary Key b. Primary key c.Foreign key d. Composite key

ANS: Primary key

18. _____ is preferred method for enforcing data integrity
a. Constraints b. Stored Procedure c.Triggers d. Cursors

Ans:Constraints

19. How can you find rows that do not match some specified condition?

a. EXISTS b. Double use of NOT EXISTS c. NOT EXISTS d.NULL

20. To display the salary from greater to smaller and name in ascending order which of the following options should be used?

a.Ascending, Descending b. Asc, Desc c. Desc, Asc d. Descending, Ascending

UNIT – 4

1. If a is a set of attributes and $b \subseteq a$ then $a \rightarrow b$ holds

a. Reflexivity rule. B. Augmentation c. Transitivity rule. D. multivalued rule

ANS: Reflexivity rule.

2. _____ attribute remove it without changing the closure of the set of functional dependencies

a. Closure of Attribute b. extraneous attributes c. composite attribute d. functional dependency

ANS: extraneous attributes

3. A functional dependency is a relationship between or among:

A) Tables B) Relations C) Rows D) Attributes

ANS: Attributes

4. The 2NF describes the tabular format in which:

A: there are no repeating groups in the table
B: all attributes are dependent on the primary key
C: A & B with no partial dependency
D: there is no partial dependency

ANS: there is no partial dependency

5. The process of converting complex object data structures into well-structured relations is called:

a. object-relational modeling. b. normalization.
c. referential integrity. d. determinant analysis.

ANS: normalization.

6. If one attribute is a determinant of a second, which in turn is a determinant of a third, then the relation cannot be:

a. well-structured. b. in 1NF. c. in 2NF. d. in 3NF.

ANS: in 3NF

7. The essential characteristic of _____ normal form is that every determinant in the table must be a candidate key.

a. Boyce Codd b. Domain Key c. Fourth d. Fifth

ANS: Boyce Codd

8. A table that is in 2NF and contains no transitive dependencies is said to be in (check only one)

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

ANS: 3NF

9. Consider the relation scheme $R = (E, F, G, H, I, J, K, L, M, N)$ and the set of functional dependencies $\{\{E, F\} \twoheadrightarrow \{G\}, \{F\} \twoheadrightarrow \{I, J\}, \{E, H\} \twoheadrightarrow \{K, L\} \twoheadrightarrow (M), \{K\} \twoheadrightarrow \{M\}, \{L\} \twoheadrightarrow \{N\}\}$ on R . What is the key for R ?

(A) $\{E, F\}$ (B) $\{E, F, H\}$ (C) $\{E, F, H, K, L\}$ (D) $\{E\}$

ANS: $\{E, F, H\}$

10. Which of the following is NOT a superkey in a relational schema with attributes V, W, X, Y, Z and primary key VY ?

(A) $VXYZ$ (B) $VWXZ$ (C) $VWXY$ (D) $VWXYZ$

ANS: $VWXZ$

11. Which of the following is TRUE?

(A) Every relation in 3NF is also in BCNF

(B) A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R

(C) Every relation in BCNF is also in 3NF

(D) No relation can be in both BCNF and 3NF

ANS: Every relation in BCNF is also in 3NF

12. Which functional dependency types is/are not present in the following dependencies?

$\text{Empno} \rightarrow \text{ENAME}, \text{Salary}, \text{Deptno}, \text{DNAME}$

$\text{DeptNo} \rightarrow \text{DNAME}$

$\text{EmpNo} \rightarrow \text{DNAME}$

A. Full functional dependency

B. Partial functional dependency

C. Transitive functional dependency

D. Both B and C

ANS: Partial functional dependency

13. If one attribute is determinant of second, which in turn is determinant of third, then the relation cannot be:

A. Well-structured

B. 1NF

- C. 2NF
D. 3NF
ANS: 3NF

14. Consider the schema $R(S,T,U,V)$ and the dependencies $S \rightarrow T$, $T \rightarrow U$, $U \rightarrow V$, $V \rightarrow S$. Let $R = \{R_1, R_2\}$ such that $R_1 \cap R_2 = \Phi$. Then the decomposition is :

- A. not in 2NF
B. in 2NF but not in 3NF
C. in 3NF but not in 2NF
D. in both 2NF and 3NF
ANS: in 2NF but not in 3NF

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

$F1 \rightarrow F3$

$F2 \rightarrow F4$

$(F1, F2) \rightarrow F5$

in terms of normalization, this table is in

- (a) 1NF (b) 2NF (c) 3NF (d) None of these

ANS: 1NF

16. The relation schema Student_Performance (name, courseNo, rollNo, grade) has the following FDs:

name, courseNo \rightarrow grade

rollNo, courseNo \rightarrow grade

name \rightarrow rollNo

rollNo \rightarrow name

The highest normal form of this relation scheme is

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

ANS: 3NF

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

$AB \rightarrow CD$

$DE \rightarrow P$

$C \rightarrow E$

$P \rightarrow C$

$B \rightarrow G$

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

ANS: not in 2NF

18. Which normal form is considered adequate for normal relational database design?

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

ANS: 3NF

19. 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

- (a) dependency preserving and lossless join
- (b) lossless join but not dependency preserving
- (c) dependency preserving but not lossless join
- (d) not dependency preserving and not lossless join

ANS: dependency preserving but not lossless join

20. 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

ANS: More than zero but less than that of an equivalent 3NF decomposition

UNIT 5

1. The property of a transaction that persists all the crashes is
 - a. Atomicity
 - b. Durability
 - c. Isolation
 - d. concurrency

Ans: Durability
2. _____ states that only valid data will be written to the database.
 - a. Consistency
 - b. Atomicity
 - c. Durability
 - d. Isolation

Ans: Consistency
3. The transaction said to be successfully executed when _____ statement is executed
 - a. Roll back
 - b. commit
 - c. Set transaction
 - d. begin transaction

Ans: .commit
4. ____ means that the data used during the execution of a transaction cannot be used by a second transaction until the first one is completed.
 - a. Consistency
 - b. Atomicity
 - c. Durability
 - d. Isolation

Ans: isolation
5. In order to maintain transactional integrity and database consistency, what technology does a DBMS deploy?
 - a. Triggers
 - b. Pointers
 - c. Locks
 - d. Cursors

Ans: Locks
6. Which of the following are introduced to reduce the overheads caused by the log-based recovery?
 - a. Checkpoints
 - b. Indices
 - c. Deadlocks
 - d. Locks

Ans: checkpoints

7. 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

Ans: Concurrency

8. Which of the following is the oldest database model?

- a. Relational b. Hierarchical c. Physical d. Network

Ans: Network

9. The process of saving information onto secondary storage devices is referred to as

- a. Backingup b. Restoring c. Writing d. Reading

Ans: Writing

10. Which of the following belongs to transaction failure

- a. Read error b. Boot error c. Logical error d. system crash

ANS: Logical error

11. The database is partitioned into fixed-length storage units called

- a. Parts b. Blocks c. Reads d. Build

ANS: Blocks

12. 1. The log is a sequence of _____ recording all the update activities in the database.

- a. Log records b. Records c. Entries d. Redo

ANS: Log records

13. 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. log records d. Log paging

ANS: shadow Paging.

14. Which RAID type doesn't use parity for data protection?

- a. RAID 1 b. RAID 4 c. RAID 6 d. RAID 5

ANS: RAID 1

15. What is the unique characteristic of RAID 6 (Choose one)?

- a. Distributed Parity b. Striping c. Two independent distributed parity d. Mirroring

ANS: Two independent distributed parity

16. RAID level 0 refers to?

- a. Disk arrays with striping at the level of blocks b. Disk mirroring with block striping
c. Memory style error correcting code d. Block interleaved distributed parity

ANS: Disk arrays with striping at the level of blocks.

17. RAID level 2 refers to?

- a. Disk arrays with striping at the level of blocks b. Disk mirroring with block striping
c. Memory style error correcting code d. Block interleaved distributed parity

ANS: Memory style error correcting code

18. Data striping by splitting bits across multiple disks is called as _____

- a. RAID striping b. Array striping c. Bit level striping d. Block level striping

ANS: Bit level striping

19. Computer system of a parallel computer is capable of

- a. Decentralized computing b. Parallel computing c. Centralized computing d. Distributed computing

ANS:Parallel computing

20. A paradigm of multiple autonomous computer having the private memory communicating through computer network is called

- a. centralized computing b.cloud computing c.parallel computing d. distributed computing

ANS: distributed computing.

18CSC303J – DBMS SAMPLE MCQ QUESTIONS

PART-A

1. _____ is a basic operation in relational algebra?

- a) set difference
b) addition
c) deletion

d) none from above

Answer : d

2. In relational algebra, which operation is not a true unary operation?

- a) max
b) min
c) upper
d) lower

Answer : b

3. Which of the following isn't a join variant?

- a) Right
b) Upper
c) Left
d) all are versions of JOIN

Answer : d

4. 4NF is made to deal with a situation like.

- a) Partial dependency
b) Data redundancy
c) Multivalued dependency
d) None of the mentioned

Answer : c

5. The possibility of functional dependency can exists between or among the following:

- a) tuple
b) rows
c) none
d) attributes

Answer : d

6. What is the solution for multi valued dependency problem?

- a) **Divide the relations into two, each with its own theme.**
- b) Insertion
- c) Deletion
- d) Modification

Answer : a

7. Which of the following types has a reference that contains data about a single entity:

- a) 2nd Normal Form
- b) 3rd Normal Form
- c) **4th Normal Form**
- d) 5th Normal Form

Answer : c

8. What does I stand for in ACID properties of database transactions?

- a) Integrity
- b) **Isolation**
- c) Idempotent
- d) Identity

Answer : b

9. _____ rules used to restrict the amount of log information required in case of device failure and volatile information loss.

- a) Save pointing
- b) **Check pointing**
- c) Recovery
- d) Deadlock

Answer : b

10. Which provides a comprehensive list of all activities that have changed the data base contents for a certain time span?

- a) Transaction property
- b) Transaction manager
- c) **Transaction Log**
- d) Transaction control

Answer : c

11. What does D stands for in ACID properties of database transactions?

- a) Duplication
- b) Document
- c) **Durability**
- d) Deadlock

Answer : c

12. Which of the following deadlock prevention strategy is preemptive?

- a) Wait-die
- b) Wound-wait
- c) Timed out
- d) Wound-die

Answer : b

PART-B

1. Given the set of tables related to the employee working in the location.

Employee				
Eid	Name	Eage	Ejobid	Ecity
E100	Joseph	31	1	3
E101	Victoria	20	3	4
E102	Samuel	25	2	5
E103	John	27	1	3

Job	
Jobid	Jobname
1	Clerk
2	Accountant
3	Pharmacist
4	Mechanic

Location	
Locid	Locname
1	Chennai
2	Madurai
3	Coimbatore
4	Puducherry
5	Kodaikanal

Choose the appropriate expression that produces the given result

Name
Joseph
John

- [A] $\pi_{\text{Name}}(\rho_{\text{Eage} > 25}(\text{Employee}))$
 [B] $\rho_{\text{Name}}(\pi_{\text{Eage} > 25}(\text{Employee}))$
 [C] $\pi_{\text{Eid} > 2 \vee \text{Eage} \neq 31}(\text{Employee})$
 [D] $\pi_{\text{Name}}(\rho_{\text{Locname} = \text{"Coimbatore"}}(\text{Employee} \bowtie \text{Location}))$

ANSWER : [A] & [D]

2. Choose those records that will be produced by the natural join on both Sample 1 and Sample 2 schema, in which the attribute 3 is greater than attribute 1.

- [A] (12,13,13,15)
 [B] (16,14,14,11)
 [C] (12,13,11,16)
 [D] (13,15,11,16)

Answer : [A]

3. The result that is produced by the minus operator between the given schema

- [A] (5)
 [B] (4)
 [C] (3)
 [D] (6)

Answer : [D]

4. For the given functional dependency $\{P \rightarrow Q, PQ \rightarrow T, QV \rightarrow T, RS \rightarrow X, T \rightarrow R\}$, the closures of $(PT)^+$ and $(PST)^+$ are _____, _____

- A) PQST, PQRSTX
 B) PQRT, PQRSTX
 C) PQRT, PQRST

D) PQST, PQRSX

Answer : B

5. For the given functional dependency $\{ P \rightarrow QR, Q \rightarrow R, PQ \rightarrow S \}$, the minimal cover will be

A) $\{ P \rightarrow R, Q \rightarrow R, PQ \rightarrow S \}$

B) $\{ P \rightarrow R, Q \rightarrow R, Q \rightarrow S \}$

C) $\{ P \rightarrow Q, Q \rightarrow R, P \rightarrow S \}$

D) $\{ P \rightarrow QR, Q \rightarrow R, P \rightarrow S \}$

Answer : C

11. The RM agency provides employee to banks in Tamilnadu. Examine the table

Emid	Ebrno	Ebraddr	Name	Post	hrsprwk
S4221	B001	City Center Plaza, Velachery	Allan	Assistant	16
S4221	B003	1-4 th Avenue, Velachery	Allan	Assistant	9
S4321	B001	City Center Plaza, Velachery	Daniel	Assistant	14
S4321	B003	1-4 th Avenue, Velachery	Daniel	Assistant	10

A) Satisfies 2NF and 3NF

B) Violates 2NF and 3NF further decomposed into (Ebrno, Ebraddr), (Emid, Name, Post) & (Emid, Ebrno, hrsprwk)

C) Satisfies 2NF but violates 3NF further the table is decomposed to (Emid, Ebrno, Ebraddr) & (Name, Post, hrsprwk)

D) Satisfies 2NF but violates 3NF further the table is decomposed to (Emid, Ebraddr) & (Ebrno, Name, Post, hrsprwk)

Answer : B

12. Examine the manager information related to the bank

Brno	Braddr	telno	mrstno	Name
B001	City Center Plaza, Velacherry	123-456-7899	S4231	Thomas
B002	Jafferanpet, Annanagar	456-123-7899	S4232	Anthony
B003	1-4 th Avenue, Velachery	321-456-7899	S4233	Peters
B004	10 th cross street Avenue, AnnaNagar	213-456-7999	S4234	Sam

A) Satisfies 3NF

B) Violates 3NF further decomposed to (Brno, telno) & (Braddr, mrstno, Name)

C) Violates 3NF further decomposed to (BrNo, Name) & (Braddr, telno, mrstno)

D) Violates 3NF further decomposed to (BrNo, Braddr, telno, mrstno) & (mrstno, Name)

Answer : D

13. Consider the following functional dependencies for a relation R(J, K, L, M, N)

$JK \rightarrow L, L \rightarrow M, KM \rightarrow N$

Which of the following set of attributes functionally determine T?

a) JLM

b) KLM

c) JK

d) LM

Answer : b and c

14. Identify the correct canonical cover for the following set of functional dependencies.

$FD = \{ U \rightarrow VW, V \rightarrow W, U \rightarrow V, UV \rightarrow W \}$

a) $\{ U \rightarrow VW, V \rightarrow W, U \rightarrow V \}$

b) $\{ U \rightarrow V, V \rightarrow W \}$

c) $\{ U \rightarrow VW, UV \rightarrow W, U \rightarrow V, V \rightarrow W \}$

d) $\{ U \rightarrow VW \}$

Answer : b

15. Consider the following relation schema.

Customer		
Cus_No	Loan_No	Cus_City
944957	P145/P214	Tambaram/Egmore
877645	P810	Tnagar

Identify if any multivalued dependency exist in the above schema.

- a) $\text{cus_city} \twoheadrightarrow \text{cus_no}$
- b) $\text{cus_no} \twoheadrightarrow \text{loan_no}$
 $\text{cus_no} \twoheadrightarrow \text{cus_city}$
- c) $\text{loan_no} \twoheadrightarrow \text{cus_no}$
 $\text{loan_no} \twoheadrightarrow \text{cus_city}$
- d) $\text{loan_no} \twoheadrightarrow \text{cus_no}$
 $\text{cus_city} \twoheadrightarrow \text{cus_no}$

Answer : b

16. Consider the relational schema student(reg_no, name, mobile_no, email_id) with the following functional dependencies.

$\text{reg_no} \rightarrow \text{name}$, $\text{name} \rightarrow \text{mobile_no}$, $\text{mobile_no} \rightarrow \text{email_id}$, $\text{email_id} \rightarrow \text{name}$.

All the four attributes are key attributes. Relation student is decomposed into student(reg_no, name), student(name, mobile_no), student(name, email_id). Identify the correct statement based on the decomposition.

- a) **The decomposition is lossless and is dependency preserving**
- b) The decomposition is lossless but is NOT dependency preserving
- c) The decomposition is lossy and is dependency preserving
- d) The decomposition is lossy but is NOT dependency preserving

Answer : a

17. Consider the following relational schema faculty(faculty_id, name, course) and identify the correct statement.

faculty_id	name	Course
100680	Edwin	DBMS
100680	Edwin	OOAD
101262	Joel	JAVA
101262	Joel	JAVA

- a) Faculty_id functionally determines name and name functionally determines course
- b) Faculty_id functionally determines course and name does not functionally determines course
- c) **Name does not functionally determines course**
- d) Faculty_id functionally does not determines name and name functionally determines course

Answer : c

18. Normalize the following relation to BCNF.

CycleTest(RegNo, TestDate, TestTime, FacultyID, HallNo)

The functional dependencies of the relation are :

$\text{RegNo, TestDate} \rightarrow \text{TestTime, FacultyID, HallNo}$

$\text{FacultyID, TestDate, TestTime} \rightarrow \text{RegNo, HallNo}$

$\text{FacultyID, TestDate} \rightarrow \text{HallNo}$

- a) CycleTest1(RegNo, TestDate, TestTime, HallNo)

- CycleTest2(FacultyID, TestDate, HallNo)
- b) CycleTest1(RegNo, TestDate, TestTime, FacultyID)
CycleTest2(TestDate, HallNo)
- c) **CycleTest1(RegNo, TestDate, TestTime, FacultyID)**
CycleTest2(FacultyID, TestDate, HallNo)
- d) CycleTest1(RegNo, TestDate, TestTime, FacultyID)
CycleTest2(FacultyID, HallNo)

Answer : c

19. For the given schedule of transactions T1, T2 and T3, give the correct order of serialization .

<u>T1</u>	<u>T2</u>	<u>T3</u>
Read (X)		
	Read (Y)	
		Read (Y)
	Write (Y)	
Write (X)		
		Write (X)
	Read (X)	
	Write (X)	

- a) **T1-> T3-> T2**
- b) T2-> T3-> T1
- c) T1-> T2-> T3
- d) T2-> T1-> T3

Answer : a

20. Of the given schedules, which one is conflict serializable?

```

T1: r1(X); r1(Z); w1(X); w1(Z)
T2: r2(Y); r2(Z); w2(Z)
T3: r3(Y); r3(X); w3(Y)
S1: r1(X); r3(Y); r3(X); r2(Y); r2(Z);
    w3(Y); w2(Z); r1(Z); w1(X); w1(Z)
S2: r1(X); r3(Y); r2(Y); r3(X); r1(Z);
    r2(Z); w3(Y); w1(X); w2(Z); w1(Z)

```

- a. T1
- b. T2
- c. **S1**
- d. S2

Answer : c

21. Consider the given sequence of transactions on an account. Suppose if the system crashed before writing 7th statement, what recovery procedure should be done when the system is restarted?

1. T1 start
2. T1 B old=12000 new=10000
3. T1 M old=0 new=2000
4. T1 commit
5. T2 start
6. T2 B old=10000 new=10500
7. T2 commit

- a. **Undo log record 6 and then redo log records 2 & 3.**
- b. Redo log record 6 and undo records 2 & 3
- c. Undo log records 2,3 and 6
- d. Redo log records 2,3 and 6

Answer : a

22. Give the equivalent serial schedule for the following scenario?

T1	T2	T3
		R(Y)
		R(Z)
R(X)		
W(X)		
		W(Y)
		W(Z)
	W(Z)	
R(Y)		
W(Y)		
	R(Y)	
	W(Y)	
	R(X)	
	W(X)	

- a) T1- T2- T3
- b) T1- T3- T2
- c) T2- T1- T3
- d) **T3- T1- T2**

Answer : d

23. Identify the correct statement about the given schedule.

T1	T2
R(x)	
	R(y)
W(x)	
commit	
	R(x)
	commit

- a) It is irrecoverable schedule
- b) It is recoverable with cascading rollback
- c) **It is cascadeless recoverable**

d) Cannot determine this property

Answer : c

24. Identify the operation that cannot be performed on the shrinking phase of two phase locking protocol.

a) Release Share lock

b) Release Exclusive lock

c) Convert Share lock to Exclusive lock

d) Convert Exclusive lock to Share lock

Answer : c

25. Consider the following statements based on the wait-and-die technique for deadlock prevention. Identify the correct statements.

(i) Older transactions (with smaller timestamp) may wait for younger one to release data item

(ii) Older transaction forces rollback of younger one instead of waiting

(iii) A transaction may die several time before acquiring the data item

(iv) It is non-preemptive technique

(v) It is preemptive technique

a) (i), (iii), (v)

b) (ii), (iii), (iv)

c) (i), (iii), (iv)

d) (ii), (v)

Answer : c

26. Consider the following log records

`<T0, start>`

`<T0, A, 1000, 950>`

`<T0, B, 2000, 2050>`

`<T0, commit>`

`<T1, start>`

`<T1, C, 700, 600>`

If immediate database modification scheme is used, then identify the correct recovery operation.

a) Undo T0, Undo T1

b) Redo T0, Redo T1

c) Undo T0, Redo T1

d) Redo T0, Undo T1

Answer : d

27. Which one of the following statement is true for given schedule?

$S = T1:R(x), T1:R(y), T1:W(x), T2:R(y), T3:W(y), T1:W(x), T2:R(y)$

a) Conflict serializable

b) View serializable

c) Both conflict and view serializable

d) Neither conflict nor view serializable

Answer : b

28. Of the given schedules with three transactions 1,2 and 3 for reading and writing data X, indicated by r(X) and w(X) respectively, which is conflict serializable?

S1: r1(X); r2(X); w1(X); r3(X); w2(X)

S2: r2(X); r1(X); w2(X); r3(X); w1(X)

S3: r3(X); r2(X); r1(X); w2(X); w1(X)

S4: r2(X); w2(X); r3(X); r1(X); w1(X)

- a) S1
- b) S2
- c) S3
- d) **S4**

Answer : d

29. If crash happens now and the system tries to recover, what operations must be undone and redone?

(start, T4); (write, T4, y, 2, 3); (start, T1); (commit, T4); (write, T1, z, 5, 7); (checkpoint);

(start, T2); (write, T2, x, 1, 9); (commit, T2); (start, T3); (write, T3, z, 7, 2);

- a) **Undo: T3, T1; Redo: T2**
- b) Undo: T1, T2; Redo: T3
- c) Undo: T2; Redo: T1, T3
- d) Undo: T3; Redo: T1, T2

Answer : a

30. Consider the schedules S1 and S2 with transactions TR1, TR2 and TR3; and schedules S3 and S4 with transactions TR1 and TR2. Identify the correct statements

S1: W1(X) W2(X) R3(X)

S2: W1(X) R3(X) W2(X)

S3: R1(X) W2(X) W1(X)

S4: R1(X) W1(X) W2(X)

- a) S1 and S2 are view equivalent
- b) **S1 and S2 are not view equivalent**
- c) S3 and S4 are view equivalent

d) S3 and S4 are not view equivalent

Answer : b and d

31. Identify the correct statement

- a) **Share lock is compatible with share lock**
- b) Share lock is compatible with exclusive lock
- c) Exclusive lock is compatible with share lock
- d) Exclusive lock is compatible with Exclusive lock

Answer : A

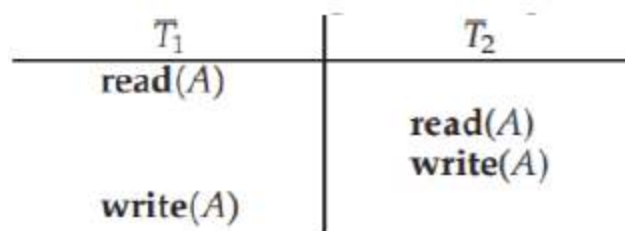
32. Consider the log record format and identify the correct statements.

$\langle T_i, X, V_1, V_2 \rangle$

- a) **V_1 is old value of a data item X**
- b) V_2 is old value of a data item X
- c) V_1 is new value of a data item X
- d) **V_2 is new value of a data item X**

Answer : a and d

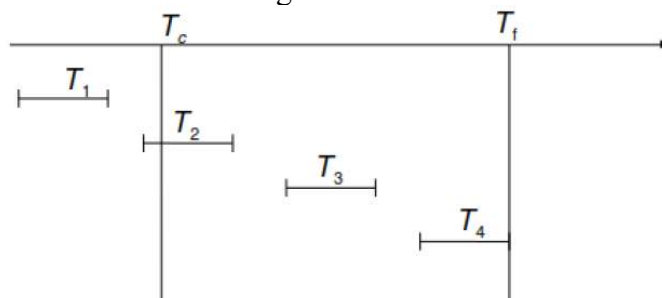
33. Which of the following statement is correct for the given schedule



- a) **Indicates Lost update anomaly**
- b) Indicates Lost delete anomaly
- c) No indication of Lost update anomaly
- d) Indicates both lost update and lost delete anomalies

Answer : a

34. Consider the following transaction states and mark the unnecessary or wrong operation.



- a) T_1 can be ignored
- b) T_2 and T_3 redone
- c) T_4 Undone
- d) **T_4 redone**

Answer : d

35. Consider two transactions T_1 and T_2 . Assume T_1 is an uncommitted transaction. Which of the following situation cause an irrecoverable error?

- a) T2 writes the data after it is read by T1.
- b) T2 reads the data after it is read by T1.
- c) **T2 writes the data after it is written by T1.**
- d) **T2 reads the data after it is written by T1.**

Answer : c and d