**Subject Code: 17MCA2C11**

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**Objective Type Questions**

**Department of Computer Science**

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**Title of the Paper: Core - XI DATABASE SYSTEMS**

**UNIT I**

1. 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

 2. 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

3. 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

4. Which of the following can be a multi-valued attribute?  
 (a) Phone\_number (b) Name (c) Date\_of\_birth d) Designation

5. The attribute that can be divided into other attributes is called\_\_\_\_\_\_

(a) simple attribute (b) derived attribute

(c) multi-valued attribute (d) composite attribute

6. The language that requires a user to specify the data to be retrieved without specifying exactly how to get it is

(a) Procedural DML. (b) Non-Procedural DML.

(c) Procedural DDL. (d)Non-Procedural DDL

7. The metadata is created by the

(a) DML compiler (b) DML pre-processor (c) DDL interpreter (d) Query interpreter

8. In E-R Diagram total participation is represented by

(a) double lines (b) dashed lines (c) single line (d) triangle

9. The database schema is written in

(a) HLL (b)DML (c)DDL (d)DCL

10. In case of entity integrity, the primary key may be\_\_\_\_\_\_\_\_\_\_

(a) not Null (b)Null (c) both Null and not Null (d)Either null or not null

11. The subset of 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

12. Disadvantages of file systems to store data is \_\_\_\_\_\_\_\_\_

(a) Data integrity (b) atomicity (c) concurrency control (d) data isolation

13. Which of the following is not a function of DBA?

(a) Schema definition (b) Authorization for data access

(c) Network maintenance (d) backup

14. The collection of information stored in a database at a particular moment is called as ……  
 (a) schema (b) instance of the database

(c) data domain (d) independence

15. 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

 16. A \_\_\_\_\_\_\_\_ in a table represents a relationship among a set of values.  
 a) Column (b) Key (c) Row (d) Entry

17.  Identify the relationship between a Movie table and Stars table:

(a) One to one (b) One to many (c) Many to many (d) None of above

18. The descriptive property possessed by each entity set is \_\_\_\_\_\_\_\_\_  
 a) Entity b) Attribute c) Relation d) Model

19.A primary key is combined with a foreign key creates\_\_\_\_\_\_\_\_\_\_\_  
 a) Parent-Child relationship 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

20. If the same entity type participate more than once in a  relationship type in different roles then such  relationship types are called………..

(a) recursive relationship (b) descriptive attribute

(c) ternary relationship (d) binary relationship

**UNIT II**

21. Find the ID, name, dept name, salary for instructors whose salary is greater than $80,000.  
(a) {t | t ε instructor ∧ t[salray] > 80000}  
(b) Э t ∈ r (Q(t))  
(c) {t | Э s ε instructor (t[ID] = s[ID]∧ s[salary] > 80000)}

(d) {t / t Ɛ instructors ˄ t[salary] > 80000}

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

23. If two relations R and S are joined, then the non matching tuples of both R and S are ignored in

(a) left outer join (b) right outer join  (c) full outer join (d)inner join

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

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

26. In SQL, testing whether a subquery is empty is done using

(a) DISTINCT (b) UNIQUE (c) NULL (d) EXISTS

27. An advantage of views is\_\_\_\_\_\_\_\_

(a) Data security (b) Derived columns

(c) Hiding of complex queries (d) All of the above

28. The common column is eliminated in

(a) theta join (b) outer join  (c) natural join (d)composed join

29. By default, the order by clause lists items in \_\_\_\_\_\_ order.  
(a) Descending (b) Any (c) Same (d) Ascending

30. Select name, course\_id  
 from instructor, teaches  
 where instructor\_ID= teaches\_ID;  
This Query can be replaced by which one of the following ?  
(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;

31. 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’;

32. 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)

33. Which of the following operation is used if we are interested in only certain columns of a table?

(a) Projection (b) Selection (c) Union (d) Join

34. Which of the following database object does not physically exist?

(a) Base table (b) Index (c) View (d) data dictionary

35. (SELECT course id FROM SECTION WHERE semester = ’Fall’ AND YEAR= 2009)

EXCEPT

(SELECT course id FROM SECTION WHERE semester = ’Spring’ AND YEAR= 2010);

This query displays  
(a) Only tuples from second part  
(b) Only tuples from the first part which has the tuples from second part  
(c) Tuples from both the parts  
(d) Tuples from first part which do not have second part

36.Using the \_\_\_\_\_\_ clause retains only one copy of such identical tuples.  
 (a) Null (b) Unique (c) Not null (d) Distinct

37. The \_\_\_\_ connective tests for set membership, where the set is a collection of values produced by a select clause.

(a) in (b) Not in (c) all (d) on

 38. ……………..specifies a search condition for a group or an aggregate.

(a) GROUP BY Clause (b) HAVING Clause

(c) FROM Clause (d) WHERE Clause

39. For like predicate which of the following is true.  
 i) % matches zero of more characters.  
 ii) \_ \_ matches one or more character.  
(a) i-only (b) ii-only (c) Both of them (d) None of them

40. What type of JOIN is used when you have to include rows that do not have matching values?

(a) Equi join (b) outer join (c) cross join (d) Natural join.

**UNIT III**

41. The FD A→ B, DB→ C implies

(a) DA→ C (b) A→ C (c) B→ A (d) DB→A

42. A relation is in \_\_\_\_\_\_\_\_\_\_\_\_ if an attribute of a composite key is dependent on an attribute of other composite key.

(a) 2NF (b) 3NF (c) BCNF (d) 1NF

43. A table is in the ………………….. if only candidate keys are the determinants.

(a) functional dependency (b) transitive dependency (c) 4 NF (d) BCNF

44. Reflexivity property says that X → Y is true if Y is ………………….

(a) Subset of X (b) Null set of X (c) Super set of Y (d) Subset of Y

45. The normal form which satisfies multi-valued dependencies and which is in BCNF is  
(a) 4 NF (b) 3 NF (c) 2 NF (d) All of the mentioned

46. Fifth Normal form is concerned with \_\_\_\_\_\_\_\_\_  
(a) Functional dependency (b) Multi-valued dependency  
(c) Join dependency (d) Domain-key

47. Which of the following is not a Armstrong’s Axiom?  
(a) Reflexivity rule (b) Transitivity rule (c) Pseudo-transitivity rule (d) Augmentation rule

48. 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

49. For a relation R with schema R (A, B, C, D), let us assume that A is the primary key. And, R consists of the set of functional dependencies F = {A → B, A → C, AB → C, C → D}. Which of the following would violate the 3NF rule?

(a) AB → C (b) C → D(c) A → BCD (d) None of the above

50. If α→β holds then so does \_\_\_\_\_\_\_

(a) γα → γβ (b) α →→ γβ (c) both (a) and (b) (d) γα → rβ

51. If A 🡪 B and C 🡪 D then AC 🡪 BD

(a) Decomposition (b) Augmentation (c) Transitivity (d) Composition

52. The left and right hand sides of an FD are sometimes called the \_\_\_\_\_\_\_

(a) Dependent (b) interdependent (c) determinant (d) partially determinant

53. Considering functional dependency, one in which removal of some attributes does not affect dependency is called

(a) full functional dependency (b) partial dependency

(c) prime functional dependency (d) transitive dependency

54. An FD is **\_\_\_\_\_\_\_\_\_\_** if and only if the right hand side is a subset of left hand side.

(a) trivial (b) non-trivial (c) singleton set (d) dependency prevention

55. \_\_\_\_\_\_\_\_ is used to indicate the property of a relation scheme that can be decomposed loss-less into three or more simpler relation.

(a) DKNF (b) join dependency (c) trivial dependency (d) non-transitive

56. If attributes A and B determine attribute C, then it is also true that\_\_\_\_\_\_\_\_\_\_\_\_

(a) A → C (b) B → C (c) (A, B) is a composite determinant (d) C is a determinant

57. If attribute A determines both attributes B and C, then it is also true that \_\_\_\_\_\_\_\_\_

(a) A → B (b) B → A (c) C → A (d) (B, C) → A

58. If both the functional dependencies : X→Y and Y→X hold for two attributes X and Y then the relationship between X and Y is

(a) M:N (b) M:1 (c) 1:1 (d) 1:M

59. Functional Dependencies are the types of constraints that are based on\_\_\_\_\_\_

(a) Key (b() Key revisited (c) Superset key (d) constraints

60. Rule which states that addition of same attributes to right side and left side will results in other valid dependency is classified as\_\_\_\_\_\_\_\_\_\_\_

(a) referential rule (b) inferential rule (c) augmentation rule (d) reflexive rule

**UNIT IV**

61. Which of the following is not a recovery technique?

 (a) deferred update (b) immediate update

(c) two-phase commit (d)shadow paging

62. Cascading rollback is avoided in all protocol except \_\_\_\_\_\_\_\_\_

(a) strict two-phase locking protocol (b) tree locking protocol

(c) two-phase locking protocol (d) validation based protocol

63. Assume transaction A holds a shared lock R. If transaction B also requests for a sharedlock on R

(a) it will result in a deadlock situation. (b) it will immediately be rejected.

(c) it will immediately be granted. (d) it will be granted as soon as it is released

64. Immediate database modification technique uses \_\_\_\_\_\_

(a) both undo and redo (b) undo but no redo.

(c)redo but no undo. (d) neither undo nor redo.

65. Which of the following has “all-or-none” property?  
(a) Atomicity (b) Durability (c) Isolation (d) All of the mentioned

66. Each modification done in database transaction are first recorded into the \_\_\_\_\_\_\_\_  
(a) Harddrive (b) Log (c) Disk (d) Datamart

67. \_\_\_\_\_\_\_ means that data used during the execution of a transaction cannot be used by a second transaction until the first one is completed.  
(a) Serializability (b) Atomicity (c) Isolation (d) Time stamping

68. For correct behavior during recovery, undo and redo operation must be  
(a) Commutative (b) Associative (c) Idempotent (d) Distributive

69. In a two-phase locking protocol, a transaction release locks in ……… phase.

(a) shrinking phase (b) growing phase (c) running phase (d)initial phase

70. If a transaction acquires exclusive lock, then it can perform ………. operation.

(a) read (b) write (c)read and write (d) update

71. ………. helps solve concurrency problem.

(a) locking (b) transaction monitor (c) transaction serializability (d) two phase commit

72. In log based recovery, the log is sequence of………….

(a) filter (b) records (c) blocks (d) numbers

73. If a transaction obtains an exclusive lock on a row, it means that the transaction wants to ....... that row.

(a) select (b) update (c) view (d) read

74. In which state, the transaction will wait for the final statement has been executed?

(a) Active (b) Failed (c) Aborted (d) partially committed

75. The phenomenon in which one failure leads to a series of transaction rollbacks is called as \_\_\_\_\_\_\_\_  
(a) Cascading rollback (b) Cascadeless rollback (c) Cascade cause (d) rollback

76. If the transaction can no longer continue with its normal execution because of some internal condition, it is called as a \_\_\_\_\_\_\_\_\_  
(a) Logical error (b) System error (c) System crash (d) runtime error

77. A logical counter is \_\_\_\_\_\_\_\_\_ after a new timestamp has been assigned   
(a) Incremented (b) Decremented (c) Doubled (d) Remains the same

78. R-timestamp(Q) denotes?  
(a) The largest timestamp of any transaction that can execute write(Q) successfully  
(b) The largest timestamp of any transaction that can execute read(Q) successfully  
(c) The smallest timestamp of any transaction that can execute write(Q) successfully  
(d) The smallest timestamp of any transaction that can execute read(Q) successfully

79. Read only operations omit the \_\_\_\_\_\_\_ phase  
(a) Read phase (b) Validation phase (c) Write phase (d) execute phase

80. Which of the following timestamps is used to record the time when a database has completed its write operation?  
(a) Start(i) (b) Validation(i) (c) Finish(i) (d) Write(i)

**UNIT V**

81. Storing a separate copy of the database at multiple locations is which of the following?

(a) horizontal partitioning (b) vertical partitioning

(c) data replication (d) vertical and horizontal partitioning

82. What is the mechanism which guarantees that all database servers participating in a distributed transaction either all commit or all roll back the statements in the transaction?

(a) commit (b) commit transaction (c) two-phase commit (d) three-phase commit

83. \_\_\_\_\_\_\_transparency exists when the end user or programmer must specify the database

fragment names but does not need to specify where these fragments are located.

(a)Transaction  (b) Location  (c) Local mapping (d) Fragmentation

84. \_\_\_\_\_\_\_\_\_\_\_\_transparency ensures that the system will continue to operate in the event of a

node failure.

(a) Transaction   (b) Distribution (c) Failure (d) Performance

85. A distributed \_\_\_\_\_\_\_\_\_\_ allows a transaction to reference several different remote sites.

(a) request  (b) site (c) data location (d)transaction

86. Most general-purpose computer systems with only a few processors are said to be of

1. (a) Fine-granularity parallelism (b) Diverse-granularity parallelism
2. (c) Dense-granularity parallelism (d) Coarse-granularity parallelism

87. Machines with a large number of processors are said to be of

(a) Diverse-granularity parallelism (b) Coarse-granularity parallelism

(c)Dense-granularity parallelism (d) Fine-granularity parallelism

88. A single computer system that do not interact with other computer systems is called

(a) Processed database systems (b) Centralized database systems

(c) Decentralized database systems (d) Distributed database systems

89. \_\_\_\_\_\_\_\_\_\_\_\_allow clients to interact with the servers by making requests to read or update

data, in units such as files

(a) query server systems (b) data server systems

(c) transaction server systems (d) prefetching

90. A homogenous distributed database is which of the following?

(a) The same DBMS is used at each location and data are not distributed across all nodes

(b) The same DBMS is used at each location and data are distributed across all nodes

(c) A different DBMS is used at each location and data are not distributed across all nodes

(d) A different DBMS is used at each location and data are distributed across all nodes.

91. some of the columns of a relation are at different sites is which of the following?

(a) Data Replication (b) Horizontal fragmentation (c) Vertical fragmentation (d) multiuser

92. \_\_\_\_\_\_\_\_ that receives users’ queries, executes them, and sends the result back.

(a) server process (b) log writer process (c) monitor process (d) checkpoint process

93. If one site fails in a \_\_\_\_\_\_\_\_\_\_\_\_, the remaining sites may be able to continue operating.

(a) centralized system (b) distributed system

(c) parallel system (d) multiuser system

94. \_\_\_\_\_\_\_\_\_\_\_ is the disadvantage of majority protocol.

(a) Complicated implementation (b) deadlock cannot occur easily

(c) bottleneck (d) less overhead on read operations

95. \_\_\_\_\_\_\_\_\_\_\_ is the advantage of biased protocol.

(a) less overhead on write operations (b) less overhead on read operations

(c) deadlock handling (d) handling lock request

96. \_\_\_\_\_\_\_\_\_\_\_\_ that integrate multiple heterogeneous data source, providing an integrated global view of the data.

(a) Mediator system (b) integrated system

(c) Virtual system (d) De-escalation

97. \_\_\_\_\_\_\_\_\_\_manages access structures, query evaluation and recovery.

(a) Back end (b) Front end (c) ODBC (d) JDBC

98. \_\_\_\_\_\_\_\_\_\_\_ of a database system consists of forms, report writer facilities.

(a) Back end (b) Front end (c) ODBC (d) JDBC

99. \_\_\_\_\_\_\_\_\_\_\_\_ takes recovery actions for any failed process.

(a) Check point process (b) process monitor process

(c) log writer process (d) server process

100. Transaction manager is responsible for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(a) starting the execution of the transaction

(b) breaking the transaction into a number of sub-transaction

(c) maintaining a log for recovery process/

(d) termination of the transaction.

**ANSWER WITH EXPANSION**

**UNIT – I**

**1. (a)** Domain

**2. (d)** Foreign Key

**3. (b)** One-to-one

**4. (a)** Phone\_number

**5. (d)** composite attribute

**6. (b)** Non-Procedural DML

**7. (c)** DDL interpreter

**8. (a)**double lines

**9. (c)** DDL

**10. (a**) not Null

**11. (a)** No proper subset is a super key

**12. (d**) data isolation

**13. (c)** Network maintenance

**14. (b)** instance of the database

**15. (b)** One to one

**16. (c)** Row

**17. (c)** Many to many

**18. (b)** Attribute

**19. (a)** Parent-Child relationship between the tables that connect them

**20. (a)** recursive relationship

**UNIT - II**

**21. (a)** {t | t ε instructor ∧ t[salray] > 80000}

**22. (d)** {< x1, x2, . . . , xn > | P(x1, x2, . . . , xn)}

**23. (d)** inner join

**24. (c)** ¬

**25. (b)** ∀ t ε r (Q(t))

**26. (d)** EXISTS

**27. (a)**Data security

**28. (c)** natural join

**29. (d)** Ascending

**30. (b)** Select name, course\_id from instructor natural join teaches;

**31. (d)** Select empid where empid = 1009 and lastname = ‘GELLER’;

**32. (b)** Avg(salary)

**33. (a)** Projection

**34. (c)** View

**35. (d)** Tuples from first part which do not have second part

**36. (d)** Distinct

**37. (a)** in

**38. (b)** HAVING Clause

**39. (a)** i-only

**40. (b)** outer join

**UNIT – III**

**41. (a)**DA→ C

**42. (b)** 3NF

**43. (d)** BCNF

**44. (a)** Subset of X

**45. (a)** 4 NF

**46. (c)** Join dependency

**47. (c)** Pseudo-transitivity rule

**48. (a)** Eliminate all hidden dependencies

**49. (b)**C → D

**50. (a)** γα → γβ

**51. (d)** Composition

**52. (c)** determinant

**53. (b)** partial dependency

**54. (a)** trivial

**55. (b)** join dependency

**56. (c)** (A, B) is a composite determinant

**57. (a)** A → B

**58. (c)**1:1

**59. (a)** Key

**60. (c)** augmentation rule

**UNIT – IV**

**61. (c)**two-phase commit

**62. (d)**validation based protocol

**63. (c)**it will immediately be granted

**64. (a)**both undo and redo

**65. (a)** Atomicity

**66. (b)** Log

**67. (c)** Isolation

**68. (c)** Idempotent

**69. (a)** shrinking phase

**70. (a)** read

**171. (a)** locking

**72. (b)** records

**73. (b)** update

**74. (d)** partially committed

**75. (a)** Cascading rollback

**76. (a)** Incremented

**77. (a)** Incremented

**78. (b)** The largest timestamp of any transaction that can execute read(Q) successfully

**79. (c)** Write phase

**80. (c)** Finish(i)

**UNIT – V**

**81. (c)** data replication

**82. (c)** two-phase commit

**83. (b)**Location

**84. (c)**Failure

**85. (d)** transaction

**86. (d)** Coarse-granularity parallelism

**87. (d)** Fine-granularity parallelism

**88. (b)** Centralized database systems

**89. (b)** data server systems

**90. (b)** The same DBMS is used at each location and data are distributed across all nodes.

**91. (c)** Vertical fragmentation

**92. (a)** server process

**93. (b)** distributed system

**94. (a)** Complicated implementation

**95. (b)** less overhead on read operations

**96. (a)** Mediator system

**97. (a)** Back end

**98. (b**) Front end

**99. (b)** process monitor process

**100. (c)** maintaining a log for recovery process