BCA 204: Database Management System

Unit – I

1. What is a database?
   a) Organized collection of information that cannot be accessed, updated, and managed
   b) Collection of data or information without organizing
   c) **Organized collection of data or information that can be accessed, updated, and managed**
   d) Organized collection of data that cannot be updated

2. Who created the first DBMS?
   a) Edgar Frank Codd
   b) **Charles Bachman**
   c) Charles Babbage
   d) Sharon B. Codd

3. Which type of data can be stored in the database?
   a) Image oriented data
   b) Text, files containing data
   c) Data in the form of audio or video
   d) **All of the above**

4. In which of the following formats data is stored in the database management system?
   a) Image
   b) Text
   c) **Table**
   d) Graph

5. _____ is collection of interrelated data and set of program to access them.
   a) Data Structure
   b) Programming language

c) Database Management System

d) Database

6. Which of the following is not a type of database?

a) Hierarchical

b) Network

c) Distributed

d) **Decentralized**

……Explanation: Different types are:

1) Centralized

2) Distributed

3) Relational

4) NoSQL

5) Cloud

6) Object-oriented

7) Hierarchical

8) Network

7. Which of the following is not an example of DBMS?

a) MySQL

b) Microsoft Access

c) IBM DB2

d) **Google**

8. Which of the following is not a feature of DBMS?

a) Minimum Duplication and Redundancy of Data

b) High Level of Security

c) **Single-user Access only**

d) Support ACID Property(**atomicity, consistency, isolation, and durability**.)

9. Which of the following is a feature of the database?

a) No-backup for the data stored

b) **User interface provided**

c) Lack of Authentication

d) Store data in multiple locations

***(The important features are:

   1) Provides backup for the data stored by the user and the user can retrieve the data whenever required.

   2) Provides User-interface to access the data.

   3) Only authorized users can access the stored data.

   4) Data is stored in one central location but multiple authorized users can access the data.)

10.   Which of the following is a function of the DBMS?
   a) Storing data
   b) Providing multi-users access control
   c) Data Integrity
   d) **All of the above**

11.   What is information about data called?
   a) Hyper data
   b) Tara data
   c) **Meta data (Data about data)**
   d) Relations

12.   Collection of information stored in database at particular instance of time is called as _____.
   A) Database schema
   B) Data structure
   C) **Instance of database**
   D) Objects in database

13.   Overall design of the database is called as _____.
   a) Database Abstraction
   b) **Database Schema**
   c) Database Instance
   d) None of these

14.   Which of the following are valid types of Database Schema's ?
   a) Logical schema
   b) Physical and practical schema

c) Practical schema

d) Physical and logical schema

15. Which of the following schema is present at highest level ?

a) Physical schema

b) Sub schema

c) Logical schema

d) None of these

16. A map of entities and their attributes and relations is represented by _____.

a) Sub schema

b) Physical schema

c) None of these

d) Logical schema

17. Ability to modify schema of database in one level without affecting the schema definition in higher level is called as _____.

a) Data Abstraction

b) Data Independence

c) Data Isolation

d) Data Migration

18. There are _____ levels of data independence.

a) 1

b) 2

c) 3

d) 4

19. Physical Data Independence is ability to modify _____ without causing application program to rewrite.

a) Logical Schema

b) Conceptual Schema

c) Physical Schema

d) None of above

20. Logical Data independence is ability to modify _____ without causing application program to rewrite.

a) Logical Schema

b) Conceptual Schema

c) Physical Schema

d) All of above

21. Before use of DBMS information was stored using _____.

a) Cloud Storage

b) None of these

c) File Management System

d) Data System

22. The DBMS acts as an interface between what two components of a database system?

a) Data and Database

b) Database and User

c) Database and SQL

d) Database Application and Database

23. If person A want to transfer fund of Rs.500 to person B. If failure occurs after removing Rs.500 from Account A and before transferring to Account B then problem caused is _____.

a) Data Redundancy

b) Data Isolation

c) None of these

d) Data Atomicity

24. For performing tasks like creating the structure of the relations, deleting relation, which of the following is used?

a) Data Definition Language

b) Data Derivation Language

c) Dynamic Data Language

d) Detailed data Language

25. Which of the following is the full form of TCL?

a) Ternary control language

b) Transaction control language

c) Transaction central language

d) Transmission control language

26.   A data model is…?

a) Used to describe structure of a database

b) Set of basic operation on the database

c) Both A and B

d) None of the above

27.   In a hierarchical database, a hashing function is used to locate the…?

a) Root

b) Collisions

c) Primary key

d) Duplicate Records

28.   A top-to-bottom relationship among the items in a database is established by..?

a) Hierarchical schema

b) Network schema

c) Relational schema

d) All of the above

29.   The Data model which describes how the data is actually stored is..?

a) Internal Model

b) External model

c) Logical model

d) None of these

30.   DBA stands for..?

a) Data bank access

b) Database access

c) Data bank administration

d) Database Administrator

31.   The language used in application programs to request data from the DBMS is referred to as the

a) DML

b) DDL

c) VDL

d) SDL

32. Which of the following language is used to specify database Schema?

a) Data Management Language

b) Data Manipulation Language

c) Data Development Language

d) Data Definition Language

33. Which of the following is a Data Model?

a) Entity-Relationship model

b) Relational data model

c) Object-Based data model

d) All of the above

34. Logical design of database is called

a) Database Instance

b) Database Snapshot

c) Database Schema

d) All of the above

35. _____ is a classical approach to database design?

a) Left – Right approach

b) Right – Left approach

c) Top – Down approach

d) Bottom – Up approach

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

a) Relational

b) Hierarchical

c) Physical

d) Network

37. DML is provided for

a) Description of logical structure of database.

b) Addition of new structures in the database system.

c) Manipulation & processing of database.

d) Definition of physical structure of database system.

38. It is possible to define a schema completely using

a) VDL and DDL.

b) DDL and DML.

c) SDL and DDL.

d) VDL and DML.

39. The conceptual model is
    a) Dependent on hardware.
    b) Dependent on software.
    c) Dependent on both hardware and software
    d) Independent of both hardware and software.

40. Architecture of the database can be viewed as
    a) 2 level
    b) 3 level
    c) 1 level
    d) 4 level

41. The language used in application programs to request data from the DBMS is referred to as the
    a) DML
    b) DDL
    c) VDL
    d) SDL

42. Related fields in a database are grouped to form a
    a) Data file
    b) Data record
    c) Menu
    d) Bank

Unit – II

1. An _____ is a set of entities of the same type that share the same properties, or attributes.
   a) Entity set
   b) Attribute set
   c) Relation set
   d) Entity model

2. Entity is a _____

a) Object of relation

b) Present working model

c) Thing in real world

d) Model of relation

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

   a) Entity

   b) Attribute

   c) Relation

   d) Model

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

   a) Participation

   b) Position

   c) Role

   d) Instance

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

   a) Simple attribute

   b) Composite attribute

   c) Multivalued attribute

   d) Derived attribute

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

   a) Single valued

   b) Multi valued

   c) Composite

   d) Derived

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

   a) NA

   b) 0

   c) NULL

   d) Blank Space

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

   a) Phone_number

   b) Name

   c) Date_of_birth

   d) All of the mentioned

9. Which of the following is a single valued attribute
   a) **Register_number**
   b) Address
   c) SUBJECT_TAKEN
   d) Reference

10. The descriptive property possessed by each entity set is .
    A) Entity B) **Attribute**
    C) Relation D) Model

11. A Database Management System is a type of   software.
    a) **It is a type of system software**
    b) It is a kind of application software
    c) It is a kind of general software
    d) Both A and C

12. Which of the following refers to the level of data abstraction that describes exactly how the data actually stored?
    a) Conceptual Level
    b) **Physical Level**
    c) File Level
    d) Logical Level

13. Which of the following is a top-down approach in which the entity's higher level can be divided into two lower sub-entities?
    a) Aggregation
    b) Generalization
    c) **Specialization**
    d) All of the above

14. In which one of the following, the multiple lower entities are grouped (or combined) together to form a single higher-level entity?
    a) Specialization
    b) **Generalization**
    c) Aggregation
    d) None of the above

15. What does an RDBMS consist of?
    a) Collection of Records
    b) Collection of Keys
    c) **Collection of Tables**
    d) Collection of Fields

16. The DBMS acts as an interface between   and   of an enterprise- class system.
    a) Data and the DBMS
    b) Application and SQL
    c) Database application and the database
    d) The user and the software
17. In a relational model, relations are termed as
    (A) Tuples. (B) Attributes
    (C) **Tables**   (D) Rows
18. In an E-R diagram an entity set is represent by a
    a) rectangle
    b) ellipse
    c) diamond box
    d) circle
19. A relational database developer refers to a record as
    a) a criteria
    b) a relation
    c) a tuple
    d) an attribute
20. The relational model feature is that there
    a) no need for primary key data
    b) much more data independence than some other database models
    c) explicit relationships among records
    d) tables with many dimensions
21. Cartesian product in relational algebra is
    a) Unary operator
    b) Binary operator
    c) Ternary operator
    d) Not defined
22. DBMS helps achieve
    a) Data independence
    b) Centralized control of data
    c) Neither (A) nor (B)
    d) Both (A) and (B)
23. In E-R Diagram relationship type is represented by
    a) Ellipse
    b) Dashed ellipse

c) Rectangle

d) Diamond

24. Hierarchical model is also called
    a) Tree structure
    b) Plex Structure
    c) Normalize Structure
    d) Table Structure

25. In relational model, data is organized in
    a) table
    b) graph
    c) record
    d) tree

26. In an E-R diagram attributes are represented by
    a) rectangle
    b) square
    c) ellipse
    d) triangle

27. In an E-R diagram entity are represented by
    a) rectangle
    b) square
    c) ellipse
    d) triangle

28. In an E-R diagram derived attributes are represented by
    a) rectangle
    b) square
    c) dashed ellipse
    d) triangle

29. In an E-R diagram multivalued attributes are represented by
    a) rectangle
    b) square
    c) double ellipse
    d) triangle

30. Which data model is suitable for real world entity
    a) relational
    b) network
    c) object oriented
    d) all

31. E-R model uses this symbol to represent weak entity set?
    a) Dotted rectangle.
    b) Diamond
    c) Doubly outlined rectangle
    d) None of these
32. A data dictionary is a special file that contains:
    a) The name of all fields in all files
    b) The width of all fields in all files
    c) The data type of all fields in all files
    d) All of the above
33. In E-R diagram generalization is represented by
    a) Ellipse
    b) Dashed ellipse
    c) Rectangle
    d) Triangle
34. Snapshot of database at a given time is called
    a) Schema
    b) Instance
    c) Random
    d) Sequential
35. Which is not a data model
    a) Relational
    b) Network
    c) Hybrid
    d) Hierarchical
36. real world entity is called
    a) Attribute
    b) Object
    c) Class
    d) Product
37. If you were collecting and storing information about your music collection, an album would be considered a(n)   .
    a) Relation
    b) Entity
    c) Instance
    d) Attribute

38. We indicate roles in E-R diagrams by labelling the lines that connect_____to_____.
    a) Diamond , diamond
    b) Rectangle, diamond
    c) Rectangle, rectangle
    d) Diamond, rectangle

39. Which of the following gives a logical structure of the database graphically?
    a) Entity-relationship diagram
    b) Entity diagram
    c) Database diagram
    d) Architectural representation

40. The attribute name could be structured as a attribute consisting of first name, middle initial, and last name. This type of attribute is called
    a) Simple attribute
    b) Composite attribute
    c) Multivalued attribute
    d) Derived attribute

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

42. Who has proposed relational model
    a) Bill gates
    b) E.F Codd
    c) Charles babbage
    d) none

43. In case of entity integrity, the primary key may be
    a) Not Null
    b) Null
    c) Both Null & not Null.
    d) Any value.

44. Relational Algebra is
    a) Data Definition Language
    b) Meta Language
    c) Procedural query Language

d) None

45. Key to represent relationship between tables is called
    a) Primary key
    b) Secondary Key
    c) Foreign Key
    d) None of these

46. How many primary key is possible in a single table
    a) 1
    b) many
    c) 2
    d) 0

47. How many candidate key is possible in a single table
    a) 1
    b) Many
    c) 2
    d) 0

48. how many foreign key is possible in a single table
    a) 1
    b) More than 1
    c) 2
    d) 0 or more

49. how many super key is possible in a single table
    a) 1
    b) Many
    c) 2
    d) 0

50. Minimal super key is called
    a) Primary
    b) Alternate
    c) Candidate
    d) None

51. Dr. E.F Codd represented rules?
    a) 15
    b) 12
    c) 13
    d) none

52. Duplication of data is called:

a) Inconsistence

b) Redundancy

c) Consistency

d) None of the above

53. 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

54. Which of the following operations need the participating relations to be union compatible?

a) UNION

b) INTERSECTION

c) DIFFERENCE

d) All of the above

55. The result of the UNION operation between R1 and R2 is a relation that includes

a) all the tuples of R1

b) all the tuples of R2

c) all the tuples of R1 and R2

d) all the tuples of R1 and R2 which have common columns

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

a) Base table

b) Index

c) View

d) None of the above

57. An instance of relational schema R (A, B, C) has distinct values of A including NULL values. Which one of the following is true?

a) A is a candidate key

b) A is not a candidate key

c) A is a primary Key

d) Both (A) and (C)

58. 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

59. A_____is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.

a) Rows

b) Key

c) Attribute

d) Fields

60. Which one of the following attribute can be taken as a primary key?

a) Name

b) Street

c) Id

d) Department

61. Which one of the following cannot be taken as a primary key?

a) Id

b) Register number

c) Dept_id

d) Street

62. An attribute in a relation is a foreign key if the_____key from one relation is used as an attribute in that relation.

a) Candidate

b) Primary

c) Super

d) Sub

63. The relation with the attribute which is the primary key is referenced in another relation. The relation which has the attribute as a primary key is called?

a) Referential relation

b) Referencing relation

c) Referenced relation

d) Referred relation

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

a) Strong entity set

b) Weak entity set

c) Simple entity set

d) Primary entity set

65. Relational Algebra is a _____ 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

66. 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)

67. 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

68. Which of the following are the fundamental operations in the Relational Algebra?
   a) Select and Project
   b) Project and Cartesian
   c) Union and set Difference
   d) All of the above

69. The select, project and rename operations are called?
   a) Binary operations
   b) Ternary operations
   c) Unary operations
   d) None of the above

70. The cartesian product, union, set difference operations are called?
   a) Binary operations
   b) Ternary operations
   c) Unary operations
   d) None of the above

71. Suppose we want to list all loan numbers and the amount of the loans, but do not care about the branch name. Which of the following operation allows us to produce this relation?

a) Set difference

b) Union

c) Cartesian product

d) Project

72. The Binary operation Union, denoted, as in the set theory by…?

a) U

b) π

c) σ

d) ρ

73. Which of the following operation allows us to find the tuples that are in one relation but are not in another relation?

a) Set difference

b) Union

c) Cartesian product

d) Set intersection

Unit – III

1. _____ can help us detect poor E-R design.

a) Database Design Process

b) E-R Design Process

c) Relational scheme

d) Functional dependencies

2. If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from one of the following sources.

a) A many-to-many relationship set

b) A multivalued attribute of an entity set

c) A one-to-many relationship set

d) Both (A) many-to-many relationship set and (B) A multivalued attribute of an entity set

3. Which of the following has each related entity set has its own schema and there is an additional schema for the relationship set…….

a) A many-to-many relationship set

b) A multivalued attribute of an entity set

c) A one-to-many relationship set

d) All of the mentioned

4. Relation dept year(dept name, total inst 2007, total inst 2008, total inst 2009). Here the only functional dependencies are from dept name to the other attributes. This relation is in

a) Fourth NF

b) BCNF

c) Third NF

d) Second NF

5. If every non-key attribute is functionally dependent on the primary key, then the relation will be in…?

a) First normal form

b) Third normal form

c) Second normal form

d) No normal form

6. A functional dependency f on R is………by a set of functional dependencies F on r if every instance of r(R) that satisfies f also satisfies F?

a) Logically defined

b) Logically derived

c) Logically implied

d) None of the mentioned

7. If F is a set of functional dependencies, then the closure of F is denoted by?

a) F*

b) Fo

c) F+

d) F

8. If a functional dependency is reflexive, B is a subset of A and A is the set of attributes, then

a) B→A holds

b) A→B holds

c) AB→C holds

d) None of the mentioned

9. Armstrong axioms are called sound because?

a) They are expensive

b) They cannot generate correct functional dependencies

c) They allow us to generate the complete closure

d) They cannot generate incorrect functional dependencies

10. If A→B, A→C then which of the following is true?

    a) A→BC

    b) A→B

    c) A→C

    d) All of the mentioned

11. If B is an attribute and A→B, then B is said to be………by a?

    a) Logically implied

    b) Functionally implied

    c) Logically determined

    d) Logically determined

    e) Functionally determined

12. We say that a decomposition having the property $F'+ = F+$ is a………decomposition?

    a) Dependency losing

    b) Dependency preserving

    c) Lossless

    d) None of the mentioned

13. A table may have partial dependencies, if table consists of?

    a) One prime attribute

    b) Only one attribute

    c) Only two attributes

    d) Two prime attributes

14. Let R be a relationship between the entity sets E1 and E2 with primary key X and Y respectively. If R is a one relationship between entities E1 and E2 then which of the following FDs hold?

    a) Y→X only

    b) X→Y only

    c) Both a and b

    d) Neither of them

15. Given two functions $f(x) = 2x + 3$ and $g(x) = 3x + 2$ then composition of functions $f(g(f(x)))$ is given by?

    a) 12x + 25

    b) 6x + 7

    c) 6x + 11

    d) 6x^2 + 13x + 6

16. Let us assume that a relation R (A, B, C, D, E) with set of functional dependencies F = {A → BC, C → D} is decomposed into relations R1 (A, B, C) and R2 (A, D, E). This decomposition is _____.
    a) Lossless join decomposition
    b) Dependency preserving decomposition
    c) Not a dependency preserving decomposition
    d) Both a and c
17. Consider a relation R(A, B, C, D, E) with the set of functional dependencies F = {A → B, B → E, E → A}. Relation R is in ____.
    a) Un-normalized form
    b) Third Normal Form
    c) Boyce-Codd Normal Form
    d) Domain Key Normal Form
18. For a relation R(A, B, C, D, E) with set of functional dependencies F = {AB → E, D → C}, which of the following is a candidate key?
    a) ABCD
    b) ABD
    c) BCD
    d) ACD
19. The relation scheme Student Performance (name, courseNo, rollNo, grade) has the following functional dependencies:
    name, courseNo → grade
    rollNo, courseNo → grade
    name → rollNo
    rollNo → name
    The highest normal form of this relation scheme is
    a) 2 NF
    b) 3 NF
    c) BCNF
    d) 4NF
20. Consider a schema R(A,B,C,D) and functional dependencies A->B and C->D. Then the decomposition of R into R1(AB) and R2(CD) 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

21. R(A,B,C,D) is a relation. Which of the following does not have a lossless join, dependency preserving BCNF decomposition?
    a) A->B, B->CD
    b) A->B, B->C, C->D
    c) AB->C, C->AD
    d) A ->BCD

22. A table has fields Fl, F2, F3, F4, F5 with the following functional dependencies F1 → F3 F2→ F4 (F1 . F2) → F5 In terms of Normalization, this table is in
    a) 1 NF
    b) 2 NF
    c) 3 NF
    d) none of the above

23. Which of the given options define a transaction correctly?
    a) A transaction consists of DDL statements on the database schema.
    b) A transaction consists of COMMIT or ROLLBACK in a database session.
    c) A transaction consists of either a collection of DML statements or a DDL or DCL or TCL statement to form a logical unit of work in a database session.
    d) A transaction consists of collection of DML and DDL statements in different sessions of the database.

24. 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

25. Which one of the following statements about normal forms is FALSE?
    a) BCNF is stricter than 3NF
    b) Lossless, dependency-preserving decomposi-tion into 3NF is always possible
    c) Lossless, dependency-preserving decomposi-tion into BCNF is always possible
    d) Any relation with two attributes is in BCNF

26. With regards to transaction processing, any DBMS should be capable of:
    a) Ensuring that transactions are free from interference from other users

b) Parts of a transaction are not lost due to a failure

c) Transactions do not make the database inconsistent

d) All of the above

27. What are ACID properties of Transactions?

a) Atomicity, Consistency, Isolation, Database

b) Atomicity, Consistency, Isolation, Durability

c) Atomicity, Consistency, Inconsistent, Durability

d) Automatically, Concurrency, Isolation, Durability

28. Database locking concept is used to solve the problem of

a) Lost Update

b) Uncommitted Dependency

c) Inconsistent Data

d) All of the above

29. A lock that allows concurrent transactions to access different rows of the same table is known as a

a) Field-level lock

b) Row-level lock

c) Table-level lock

d) Database-level lock

30. A transaction completes its execution is said to be

a) Saved

b) Loaded

c) Rolled

d) Committed

31. A system is in a _____ state if there exists a set of transactions such that every transaction in the set is waiting for another transaction in the set.

a) Idle

b) Waiting

c) Deadlock

d) Ready

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

a) Commit

b) Rollback

c) Savepoint

d) Deadlock

33. What are the ways of dealing with deadlock?

a) Deadlock prevention

b) Deadlock recovery

c) Deadlock detection

d) All of the mentioned

34. 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

35. 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

36. Transaction management ensures _____ and _____ properties.

a) Atomicity and Integrity

b) Atomicity and Durability

c) Atomicity and Abstraction

d) None of these

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

a) View

b) Commit

c) Rollback

d) Flashback

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

a) View

b) Commit

c) Rollback

d) Flashback

39. In order to maintain the consistency during transactions database provides

a) Commit

b) Atomic

c) Flashback

d) Retain

40. Transaction processing is associated with everything below except
    a) Conforming an action or triggering a response
    b) Producing detail summary or exception report
    c) Recording a business activity
    d) Maintaining a data

41. Which of the following is not a recovery technique?
    a) Deferred update
    b) Immediate update
    c) Two-phase commit
    d) Recovery management

42. Checkpoints are a part of
    a) Recovery measures
    b) Security measures
    c) Concurrency measures
    d) Authorization measures

43. ……. deals with soft errors, such as power failures.
    a) system recovery
    b) media recovery
    c) database recovery
    d) failure recovery

44. ……….. is an essential part of any backup system.
    a) Filter
    b) Recovery
    c) Security
    d) Scalability

45. Media recovery deals with ………..
    a) disk errors
    b) hard errors
    c) system errors
    d) power failures

46. For a backup/restore system, …………. is a prerequisite for service in a enterprise.
    a) Filter
    b) Recovery
    c) Security
    d) Scalability

47. Failure recovery and media recovery fall under ……..
    a) transaction recovery
    b) database recovery
    c) system recovery
    d) value recovery
48. The ………. consists of the various applications and database that play a role in a backup and recovery strategy.
    a) Recovery Manager environment
    b) Recovery Manager suit
    c) Recovery Manager file
    d) Recovery Manager database
49. In which the database can be restored up to the last consistent state after the system failure?
    a) Backup
    b) Recovery
    c) Both
    d) None
50. A ……….. is a block of Recovery Manager(RMAN) job commands that is stored in the recovery catalog.
    a) recovery procedure
    b) recovery block
    c) stored block
    d) stored script
51. The enrolling of a database in a recovery catalogue is called ………
    a) set up
    b) registration
    c) start up
    d) enrolment
52. ………. is an alternative of log based recovery.
    a) Disk recovery
    b) Shadow paging
    c) Dish shadowing
    d) Crash recovery
53. Most backup and recovery commands in ……….. are executed by server sessions.
    a) Backup Manager
    b) Recovery Manager

c) Backup and Recovery Manager

d) Database Manager

54. The remote backup site is sometimes called the ………. site.

a) primary

b) secondary

c) ternary

d) None of the above

55. EXP command is used ………..

a) to take Backup of the Oracle Database

b) to import data from the exported dump file

c) to create Rollback segments

d) to create Schedule.

56. The simplest approach to introducing redundancy is to duplicate every disk is called …..

a) mirroring

b) imaging

c) copying

d) All of the above

57. A database administrator's function is _____.

a) Database design

b) Backing up the database

c) Performance monitoring

d) All of these

58. Which type of command is GRANT?

a) Transaction Control Language (TCL) command

b) Data Query Language (DQL) command

c) Data Control language (DCL) command

d) Data Definition Language (DDL) command

e) None of these

59. In a multi-user database, if two users wish to update the same record at the same time, they are prevented by

a) jamming

b) password

c) documentation

d) record lock

60. A locked file can be

a) accessed by only one user

b) modified by user with correct password

c) used to hide sensitive information

d) none of these

Unit – IV

1. What is the full form of SQL?
   a) Structured query language
   b) Structured query list
   c) Simple query language
   d) None of these

2. Which is the subset of SQL commands used to manipulate Oracle Database structures, including tables?
   a) Data definition language
   b) Data manipulation language
   c) Both of above
   d) None of these

3. Which operator performs pattern matching?
   a) Between operator
   b) Like operator
   c) Exists operator
   d) None of these

4. In SQL, which of the following is not a data definition language commands?
   a) RENAME
   b) REVOKE
   c) GRANT
   d) UPDATE

5. Which data manipulation command is used to combines the records from one or more tables?
   a) SELECT
   b) PROJECT
   c) JOIN
   d) PRODUCT

6. Which of the following is not a valid SQL type?

a) **DECIMAL**
b) NUMERIC
c) FLOAT
d) CHARACTER

7. Which operator is used to compare a value to a specified list of values?
a) BETWEEN
b) ANY
c) **IN**
d) ALL

8. The SQL used by front-end application programs to request data from the DBMS is called _____
a) **DML**
b) DDL
c) VDL
d) SDL

9. The command used to delete a particular column in a relation is _____
a) UPDATE TABLE
b) TRUNCATE COLUMN
c) **ALTER , DROP**
d) DELETE COLUMN

10. The database language that allows us to access data in a database is called :
a) **DCL**
b) DML
c) DDL
d) None Of Above

11. Which of the following is a comparison operator in SQL?
a) **Double equal sign (==)**
b) LIKE
c) BETWEEN
d) Single equal sign (=)

12. Which of the following is a legal expression in SQL?
a) SELECT NULL FROM SALES;
b) **SELECT NAME FROM SALES;**
c) SELECT * FROM SALES WHEN PRICE = NULL;
d) SELECT # FROM SALES;

13. Which of the following are TCL commands?
    a) **COMMIT and ROLLBACK**
    b) UPDATE and TRUNCATE
    c) SELECT and INSERT
    d) GRANT and REVOKE
14. Which statement is used to delete all rows in a table without having the action logged?
    a) DELETE
    b) REMOVE
    c) DROP
    d) **TRUNCATE**
15. SQL Views are also known as
    a) Simple tables
    b) **Virtual tables**
    c) Complex tables
    d) Actual Tables
16. How many Primary keys can have in a table?
    a) **Only 1**
    b) Only 2
    c) Depends on no of Columns
    d) Depends on DBA
17. Which data type can store unstructured data in a column?
    a) CHAR
    b) **RAW**
    c) NUMERIC
    d) VARCHAR
18. Which of the following is not Constraint in SQL?
    a) Primary Key
    b) Not Null
    c) Check
    d) **Union**
19. Which of the following is not a valid aggregate function?
    a) COUNT
    b) **COMPUTE**
    c) SUM
    d) MAX
20. What operator tests column for absence of data

a) NOT Operator

b) Exists Operator

c) IS NULL Operator

d) None of the above

21. In which of the following cases a DML statement is not executed?

    a) When existing rows are modified.

    b) When a table is deleted.

    c) When some rows are deleted.

    d) All of the above

22. How can you change "Thomas" into "Michel" in the "LastName" column in the Users table?

    a) UPDATE User SET LastName = 'Thomas' INTO LastName = 'Michel'

    b) MODIFY Users SET LastName = 'Michel' WHERE LastName = 'Thomas'

    c) MODIFY Users SET LastName = 'Thomas' INTO LastName = 'Michel'

    d) UPDATE Users SET LastName = 'Michel' WHERE LastName = 'Thomas'

23. Which command is used to change the definition of a table in SQL?

    a) CREATE

    b) UPDATE

    c) ALTER

    d) SELECT

24. SQL became the standard of?

    a) ASCII

    b) ANSI

    c) ISO

    d) Both B and C

25. What is the work of SELECT command?

    a) Database objects such as tables, table views, and other objects can be deleted using this command.

    b) Database objects such as tables, table views, and other objects can be deleted using this command.

    c) One or more rows from one or more tables of the database can be accessed with this command. Using the WHERE clause with this command is also possible.

d) It enables you to create new databases, tables, table views, and other objects using this command.

26. What is the work of DROP command?
    a) Using this command, you can remove or erase recorded information from a database table.
    b) Database objects such as tables, table views, and other objects can be deleted using this command.
    c) One or more rows from one or more tables of the database can be accessed with this command. Using the WHERE clause with this command is also possible.
    d) It enables you to create new databases, tables, table views, and other objects using this command

27. SQL has not the advantage of?
    a) SQL require a lot of programming.
    b) SQL provides High-Speed Query Processing.
    c) SQL follows the standard languages of ANSI and ISO.
    d) SQL is easily portable.

28. What is meant by 'SQL is an interactive language'?
    a) Learning and understanding SQL is easy
    b) It can also be used for communicating with the database.
    c) In a few seconds, complex queries can also be answered using this language.
    d) All of the above

29. Which of the following is not an SQL Statement?
    a) SELECT Statement
    b) UPDATE Statement
    c) TRUNCATE TABLE Statement
    d) FROM Statement

30. In how many categories data types has been classified?
    a) 2
    b) 3
    c) 4
    d) 5

31. Name of the data type categories are,
    a) String Data types
    b) Numeric Data types
    c) Date and time Data types

d) All of the above

32. Which of the following is not MySQL String Data Type?
    a) TEXT(Size)
    b) TINYTEXT
    c) MEDIUMTEXT
    d) LARGETEXT

33. Which of the following is not MySQL Numeric Data Type?
    a) BIT(Size)
    b) CHAR(Size)
    c) INTEGER(Size)
    d) INT(Size)

34. TINYTEXT can hold the maximum length of ___ characters?
    a) 254
    b) 255
    c) 256
    d) 257

35. Using a WHERE clause in a SQL query is used to specify SQL reserved words and characters, known as ____?
    a) Operators
    b) Data Types
    c) Numbers
    d) Syntax

36. SQL Operator can be,
    a) Unary
    b) Binary
    c) Both A and B
    d) None of the above

37. Which one of the syntaxes given below is of Binary Operator?
    a) Operator SQL _Operand
    b) Operand2 SQL _Operator Operand1
    c) Operand1 SQL _Operator Operand1
    d) Operand1 SQL _Operator Operand2

38. When an expression includes ___ SQL operator(s), the sequence in which they are evaluated is known as the SQL operator's precedence.
    a) 0
    b) 1
    c) Multiple

d) NULL

39. Which of these are the types of operators?
    a) Arithmetic
    b) Comparison
    c) Set
    d) All of the above

40. Which of the following is a SQL Logical Operator?
    a) SQL ALL Operator
    b) SQL OR Operator
    c) SQL LIKE Operator
    d) All of the above

41. Which of the following is not a SQL Logical Operator?
    a) SQL Equal Operator
    b) SQL ANY Operator
    c) SQL BETWEEN Operator
    d) SQL IN Operator

42. Types of SQL Commands are –
    a) DDL
    b) DML
    c) DCL
    d) All of the above

43. The table records can be retrieved using which command?
    a) RETRIEVE
    b) SELECT
    c) CREATE
    d) ALTER

44. In DBMS, table is known as _____ and row is known as _____.
    a) Relation, Tuple
    b) Tuple, Tuple
    c) Tuple, Relation
    d) Relation, Relation

45. To delete table definition and all data from the table, which statement is used?
    a) DELETE
    b) DROP
    c) ALTER
    d) None of the above

46. Which of the following set of operations is a valid set of aggregate operations in SQL?
    a) **COUNT,MAX,AVG,SUM**
    b) MAX, AVG, SUM, SELECT
    c) UNION,COUNT,MIN DESC
    d) AVG, MIN, MAX, ASC
47. Which of following is incorrect SQL?
    a) Select MAX(marks) from student
    b) Select SUM(marks) from student
    c) Select SUM(marks1 + marks 2) from student
    d) **Select SUM(marks1, marks2) from student**
48. To combine multiple retrievals, we write several SELECT statements and put the keyword between them. What is the keyword?
    a) COMBINE
    b) CONCAT
    c) JOIN
    d) **UNION**
49. Which one is correct syntax for applying UNION operator?
    a) SELECT column_name(s) FROM table_name1 UNION table_name2
    b) **SELECT column_name(s) FROM table_name1 UNION SELECT column_name(s) FROM table_name2**
    c) UNION SELECT column_name(s) FROM table_name1 SELECT column_name(s) FROM table_name2
    d) SELECT FROM table_name1 AND table_name2
50. Which of the following command displays distinct rows?
    a) **UNION**
    b) UNION ALL
    c) None of the above
    d) Both A and B
51. The intersection operator is used to get the _____ tuples.
    a) Different
    b) **Common**
    c) All
    d) Repeating
52. A_____ is a query that retrieves rows from more than one table or view:
    a) Start
    b) End

c) **Join**

d) All of the mentioned

53. Which one of the following commands is used to modify a column inside a table?

a) Drop

b) Update

c) **Alter**

d) Set

Unit – V

1. The fact that the same operation may apply to two or more classes is called what?

a) Inheritance

b) **Polymorphism**

c) Encapsulation

d) Multiple classification

2. The object-oriented development life cycle is which of the following?

a) **Analysis, design, and implementation steps in the given order and using multiple iterations.**

b) Analysis, design, and implementation steps in the given order and going through the steps no more than one time.

c) Analysis, design, and implementation steps in any order and using multiple iterations.

d) Analysis, design, and implementation steps in any order and going through the steps no more than one time

3. Multiplicity is the same as what concept for an ERD?

a) Relationship

b) Attribute

c) Entity

d) **Cardinality**

4. Composition is a stronger form of which of the following?

a) **Aggregation**

b) Encapsulation

c) Inheritance

d) All of the above.

5. An abstract class is which of the following?

   a) A class that has direct instances, but whose descendants may have direct instances.

   b) A class that has no direct instances, but whose descendants may have direct instances.

   c) A class that has direct instances, but whose descendants may not have direct instances.

   d) A class that has no direct instances, but whose descendants may not have direct instances.

6. The term Complete for a UML has the same meaning as which of the following for an EER diagram?

   a) Overlapping rule

   b) Disjoint rule

   c) Total specialization rule

   d) Partial specialization rule

7. A UML diagram includes which of the following?

   a) Class name

   b) List of attributes

   c) List of operations

   d) All of the above.

8. An object can have which of the following multiplicities?

   a) Zero

   b) One

   c) More than one

   d) All of the above.

9. Which of the following statement is true concerning objects and/or classes?

   a) An object is an instance of a class.

   b) A class is an instance of an object.

   c) An object includes encapsulates only data.

   d) A class includes encapsulates only data.

10. Which of the following applies to a class rather than an object?

    a) Query

    b) Update

    c) Scope

    d) Constructor

11. The benefits of object-oriented modelling are which of the following?
    a) The ability to tackle more challenging problems
    b) Reusability of analysis, design, and programming results
    c) Improved communication between users, analysts, etc.
    d) All of the above.

12. The term Incomplete for a UML has the same meaning as which of the following for an EER diagram?
    a) Overlapping rule
    b) Disjoint rule
    c) Total specialization rule
    d) Partial specialization rule

13. A constructor operation does which of the following?
    a) Creates a new instance of a class
    b) Updates an existing instance of a class
    c) Deletes and existing instance of a class
    d) All of the above.

14. Which of the following is a technique for hiding the internal implementation details of an object?
    a) Encapsulation
    b) Polymorphism
    c) Inheritance
    d) All of the above.

15. Aggregation is which of the following?
    a) Expresses a part-of relationship and is a stronger form of an association relationship.
    b) Expresses a part-of relationship and is a weaker form of an association relationship.
    c) Expresses an is-a relationship and is a stronger form of an association relationship.
    d) Expresses an is-a relationship and is a weaker form of an association relationship.

16. Which of the following language was developed as the first purely object programming language?
    a) SmallTalk
    b) C++
    c) Kotlin
    d) Java

17. Who developed object-oriented programming?
    a) Adele Goldberg
    b) Dennis Ritchie
    c) Alan Kay
    d) Andrea Ferro
18. Which of the following is not an OOPS concept?
    a) Encapsulation
    b) Polymorphism
    c) Exception
    d) Abstraction
19. Which feature of OOPS described the reusability of code?
    a) Abstraction
    b) Encapsulation
    c) Polymorphism
    d) Inheritance
20. ODL supports which of the following types of association relationships?
    a) Unary
    b) Unary and Binary
    c) Unary and Binary and Ternary
    d) Unary and Binary and Ternary and higher
21. An extent is which of the following?
    a) A keyword that indicates that the subclass inherits from a superclass
    b) A keyword that indicates that the superclass inherits from a subclass
    c) The set of all instances of a class within a database
    d) Only one instance of a class within a database
22. Identify the class name for the following code: ABC123 course();
    a) ABC123
    b) course
    c) course()
    d) All of the above.
23. Using ODL, you can define which of the following?
    a) Attribute
    b) Structure
    c) Operation
    d) All of the above
24. The keyword "inverse" is used in which of the following?
    a) Class

b) Attribute

c) Relationship

d) All of the above.

25. The object definition language (ODL) is which of the following?

a) Used to develop logical schemas

b) A data definition language for OODB

c) A method to implement a logical schema

d) All of the above.

26. An atomic literal is which of the following?

a) Strings

b) Boolean

c) Long

d) All of the above.

27. Which of the following is true concerning an ODBMS?

a) They have the ability to store complex data types on the Web.

b) They are overtaking RDBMS for all applications.

c) They are most useful for traditional, two-dimensional database table applications.

d) All of the above.

28. The reserved word enum is used for which of the following?

a) To define a range for an attribute.

b) To define a range for a class.

c) To define a range for a relationship.

d) All of the above.

29. Which of the following is true concerning the following statement: class Manager extends Employee

a) Manager is a concrete class and a superclass.

b) Manager is a concrete class and a subclass.

c) Manager is an abstract class and a superclass.

d) Manager is an abstract class and a subclass.

30. Which of the following is an ordered collection of elements of the same type?

a) Set

b) Bag

c) List

d) Dictionary

31. A relationship should be specified how in the ODL?

a) One direction starting with the first class
b) One direction starting with the second class
c) Neither direction.
d) Both directions.

32. Using OQL, you may do which of the following?
    a) Return an entire collection of elements including duplicates.
    b) Return a collection of elements without duplicates.
    c) Return a specific subset of elements using a given criteria.
    d) All of the above.

33. The Object Query Language is which of the following"?
    a) Similar to SQL and uses a select-from-where structure
    b) Similar to SQL and uses a select-where structure
    c) Similar to SQL and uses a from-where structure
    d) Not similar to SQL

34. Which of the following is true concerning a global transaction?
    a) The required data are at one local site and the distributed DBMS routes request as necessary
    b) The required data are located in at least one nonlocal site and the distributed DBMS routes request as necessary.
    c) The required data are at one local site and the distributed DBMS passes the request to only the local DBMS
    d) The required data are located in at least one nonlocal site and the distributed DBMS passes the request to only the local DBMS

35. 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.

36. Storing a separate copy of the database at multiple locations is which of the following
    a) Data Replication
    b) Horizontal Partitioning
    c) Vertical Partitioning

d) None of the above

37. Which of the following is the advantage of a distributed database over a centralized database?
    a) **Module wise growth**
    b) Simplicity and ease
    c) Slow Response
    d) None of the above

38. A distributed database is a collection of data which belong ――――――― to the same system but are spread over the ―――――― of the network.
    a) **Logically, sites**
    b) Physically, sites
    c) Database, DBMS
    d) None of the above

39. ―――――――― mean programs can be written as if a database is not distributed for its user.
    a) Transparency
    b) **Distribution Transparency**
    c) Robustness
    d) None of the above

40. In a distributed Database reduction of redundancy is obtained by ――――――
―――――
    a) Data fragmentation
    b) Data Replication
    c) **Data Sharing**
    d) None of the above

41. Which of the following is/are the main goals of a distributed database?
    a) Interconnection of database
    b) Incremental growth
    c) Reduced communication overhead
    d) **All of the above**

42. An autonomous homogenous environment is which of the following?
    a) **The same DBMS is used at each site and each DBMS works independently**
    b) The same DBMS is at each site and a central DBMS coordinates database access
    c) A different DBMS is at each node and each DBMS works independently

d) None of the above

43. A transaction manager is which of the following?
   a) A manager that maintains a log of transactions
   b) That maintains before and after database images
   c) That maintains appropriate concurrency control
   d) All of the above

44. Location transparency allows for which of the following
   a) Users to treat the data as if it is at one location
   b) Programmers to treat the data as if it is at one location
   c) Manager to treat the data as if it is at one location
   d) All of the above

45. Which of the following is a heterogeneous distributed database?
   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

46. In which of the following some of the columns of a relation are from different sites?
   a) Horizontal partition
   b) Vertical partition
   c) Both a and b
   d) None

47. Which of the following is a distributed database?
   a) A single logical database that is spread to multiple locations and is interconnected by a network
   b) A loose collection of a file that is spread to multiple locations and is interconnected by a network
   c) A single logical database that is limited to one location.
   d) None

48. Which of the following strategies is used by a distributed database?
   a) Totally centralized at one location and accessed by many sites
   b) Totally or partially at one location and distributed at many sites
   c) Partitioned into segments at different sites

d) All of the above

49. Commit and rollback are related to ……….

    a) Data consistency

    b) Data integrity

    c) Data Security

    d) Data Recovery

50. A Transaction ends

    a) only when it is Committed

    b) only when it is Rolled-back

    c) when it is Committed or Rolled-back

    d) only when it is initialized

51. A sophisticated locking mechanism is known as 2-phase locking which includes the Growing phase and …….

    a) Shrinking Phase

    b) Release phase

    c) Commit phase

    d) Acquire Phase

52. In which of the following phase new lock are acquired?

    a) Shrinking Phase

    b) Release phase

    c) Commit phase

    d) Growing Phase

53. A transaction processing system is also called as …….

    a) processing monitor

    b) Transaction monitor

    c) TP Monitor

    d) None

54. The transactions are always ……… if it always locks a data item in shared mode before reading it.

    a) Well formed

    b) Well distributed

    c) Well locked

    d) Well shared

55. Which of the following transaction property will check whether all the operation of a transaction completed or none?

    a) Atomicity

    b) Consistency

c) Isolation

d) Durability

56. The total ordering of operations across groups ensures ………..of transactions.

 a) serializability

 b) synchronizability

 c) atomicity

 d) durability

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

 a) Active

 b) Failed

 c) Aborted

 d) partially committed

58. The ORDER concurrency control technique is based on the ———— property.

 a) ordering mechanism

 b) inherent ordering

 c) total ordering

 d) partial ordering

59. The …………is responsible for ensuring correct execution in the presence of failures.

 a) Database Manager

 b) Transaction Manager

 c) Recovery Manager

 d) Executive Manager

60. A distributed transaction can be …………. if queries are issued at one or more nodes.

 a) fully read-only

 b) partially read-only

 c) fully read-write

 d) partially read-write

61. A database administrator can manually force the COMMIT or ROLLBACK of a local ………… distributed transaction.

 a) in-force

 b) in-doubt

 c) in-local

d) in-manual

62. Which of the following is a tightly coupled system?

   a) Gnutella
   b) Hadoop
   c) Neither a nor b
   d) Both a and b

63. 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 DBMS

64. _____ requires that data should be made available to only authorized users.

   a) Data integrity
   b) Privacy
   c) Security
   d) None of the Mentioned

65. Who developed the normalization process:

   a) E.F. codd
   b) F.F. codd
   c) E.E. codd
   d) None of the mentioned