CSL333-DBMS LAB

VIVA –MODEL QUESTIONS :-SET 1

1. What is database?

A database is a logically coherent collection of data with some inherent meaning, representing some aspect of real world and which is designed, built and populated with data for a specific purpose.

2. What is DBMS?

It is a collection of programs that enables user to create and maintain a database. In other words it is general-purpose software that provides the users with the processes of defining, constructing and manipulating the database for various applications.

3. What is a Database system?

The database and DBMS software together is called as Database system.

4. Advantages of DBMS?

Redundancy is controlled.

Unauthorized access is restricted.

Providing multiple user interfaces.

Enforcing integrity constraints.

Providing backup and recovery.

5. Describe the three levels of data abstraction?

The are three levels of abstraction:

Physical level: The lowest level of abstraction describes how data are stored.

Logical level: The next higher level of abstraction, describes what data are stored in database and what relationship among those data.

View level: The highest level of abstraction describes only part of entire database.

6. Define the "integrity rules"

There are two Integrity rules.

Entity Integrity: States that “Primary key cannot have NULL value”

Referential Integrity: States that “Foreign Key can be either a NULL value or should be Primary Key value of other relation.

7. What is Data Independence?

Data independence means that “the application is independent of the storage structure and access strategy of data”. In other words, The ability to modify the schema definition in

one level should not affect the schema definition in the next higher level.

Two types of Data Independence:

Physical Data Independence: Modification in physical level should not affect the logical level.

Logical Data Independence: Modification in logical level should affect the view level.

NOTE: Logical Data Independence is more difficult to achieve

8. What is a view? How it is related to data independence?

A view may be thought of as a virtual table, that is, a table that does not really exist in its own right but is instead derived from one or more underlying base table. In other words, there is no stored file that direct represents the view instead a definition of view is stored

in data dictionary.

Growth and restructuring of base tables is not reflected in views. Thus the view can insulate users from the effects of restructuring and growth in the database. Hence accounts for logical data independence.

9. What is Data Model?

A collection of conceptual tools for describing data, data relationships data semantics and constraints.

10. What is E-R model?

This data model is based on real world that consists of basic objects called entities and of relationship among these objects. Entities are described in a database by a set of attributes.

11. What is Object Oriented model?

This model is based on collection of objects. An object contains values stored in instance variables with in the object. An object also contains bodies of code that operate on the object. These bodies of code are called methods. Objects that contain same types of values and the same methods are grouped together into classes.

12. What is an Entity?

It is a 'thing' in the real world with an independent existence.

13. What is an Entity type?

It is a collection (set) of entities that have same attributes.

14. What is an Entity set?

It is a collection of all entities of particular entity type in the database.

15. What is an Extension of entity type?

The collections of entities of a particular entity type are grouped together into an entity set.

16. What is Weak Entity set?

An entity set may not have sufficient attributes to form a primary key, and its primary key compromises of its partial key and primary key of its parent entity, then it is said to be Weak Entity set.

17. What is an attribute?

It is a particular property, which describes the entity.

18. What is a Relation Schema and a Relation?

A relation Schema denoted by R(A1, A2, …, An) is made up of the relation name R and the list of attributes Ai that it contains. A relation is defined as a set of tuples. Let r be the relation which contains set tuples (t1, t2, t3, ..., tn). Each tuple is an ordered list of n-

values t=(v1,v2, ..., vn).

19. What is degree of a Relation?

It is the number of attribute of its relation schema.

20. What is Relationship?

It is an association among two or more entities.

21. What is Relationship set?

The collection (or set) of similar relationships.

22. What is Relationship type?

Relationship type defines a set of associations or a relationship set among a given set of entity types.

23. What is degree of Relationship type?

It is the number of entity type participating.

24. What is DDL (Data Definition Language)?

A data base schema is specifies by a set of definitions expressed by a special language called DDL.

25. What is VDL (View Definition Language)?

It specifies user views and their mappings to the conceptual schema.

26. What is SDL (Storage Definition Language)?

This language is to specify the internal schema. This language may specify the mapping between two schemas.

27. What is Data Storage - Definition Language?

The storage structures and access methods used by database system are specified by a set of definition in a special type of DDL called data storage-definition language.

28. What is DML (Data Manipulation Language)?

This language that enable user to access or manipulate data as organized by appropriate data model.

Procedural DML or Low level: DML requires a user to specify what data are needed and how to get those data.

Non-Procedural DML or High level: DML requires a user to specify what data are needed without specifying how to get those data.

29. What is Relational Algebra?

It is procedural query language. It consists of a set of operations that take one or two relations as input and produce a new relation.

30. What is normalization?

It is a process of analyzing the given relation schemas based on their Functional Dependencies (FDs) and primary key to achieve the properties

Minimizing redundancy

Minimizing insertion, deletion and update anomalies.

31. What is Functional Dependency?

A Functional dependency is denoted by X Y between two sets of attributes X and Y that are subsets of R specifies a constraint on the possible tuple that can form a relation state r

of R. The constraint is for any two tuples t1 and t2 in r if t1[X] = t2[X] then they have t1[Y] = t2[Y]. This means the value of X component of a tuple uniquely determines the value of component Y.

32. What is Lossless join property?

It guarantees that the spurious tuple generation does not occur with respect to relation schemas after decomposition.

33. What is 1 NF (Normal Form)?

The domain of attribute must include only atomic (simple, indivisible) values.

34. What is Fully Functional dependency?

It is based on concept of full functional dependency. A functional dependency X Y is full functional dependency if removal of any attribute A from X means that the dependency does not hold any more.

35. What is 2NF?

A relation schema R is in 2NF if it is in 1NF and every non-prime attribute A in R is fully functionally dependent on primary key.

36. What is 3NF?

A relation schema R is in 3NF if it is in 2NF and for every FD X A either of the following is true

X is a Super-key of R.

A is a prime attribute of R.

In other words, if every non prime attribute is non-transitively dependent on primary key.

37. What is BCNF (Boyce-Codd Normal Form)?

A relation schema R is in BCNF if it is in 3NF and satisfies an additional constraint that for every FD X A, X must be a candidate key.

38. What is 4NF?

A relation schema R is said to be in 4NF if for every Multivalued dependency X Y that holds over R, one of following is true

X is subset or equal to (or) XY = R.

X is a super key.

39. What is 5NF?

A Relation schema R is said to be 5NF if for every join dependency {R1, R2, ..., Rn} that holds R, one the following is true

Ri = R for some i.

The join dependency is implied by the set of FD, over R in which the left side is key of R.

40. What is Domain-Key Normal Form?

A relation is said to be in DKNF if all constraints and dependencies that should hold on the constraint can be enforced by simply enforcing the domain constraint and key constraint on the relation.

41. What are the different phases of transaction?

Different phases are

Analysis phase

Redo Phase

Undo phase

42. What's the difference between a primary key and a unique key?

Both primary key and unique enforce uniqueness of the column on which they are defined. But by default primary key creates a clustered index on the column, where are unique creates a non-clustered index by default. Another major difference is that, primary key doesn't allow NULLs, but unique key allows one NULL only.

43. What are user defined data types and when you should go for them?

User defined data types let you extend the base SQL Server data types by providing a descriptive name, and format to the database. Take for example, in your database, there is a column called Flight_Num which appears in many tables. In all these tables it should be varchar(8). In this case you could create a user defined data type called Flight_num_type of varchar(8) and use it across all your tables. See sp_addtype, sp_droptype in books online.

44. Define candidate key, alternate key, and composite key.

A candidate key is one that can identify each row of a table uniquely. Generally a candidate key becomes the primary key of the table. If the table has more than one candidate key, one of them will become the primary key, and the rest are called alternate

keys. A key formed by combining at least two or more columns is called composite key.

45. What's the difference between DELETE TABLE and TRUNCATE TABLE

commands?

DELETE TABLE is a logged operation, so the deletion of each row gets logged in the transaction log, which makes it slow. TRUNCATE TABLE also deletes all the rows in a table, but it won't log the deletion of each row, instead it logs the deallocation of the data pages of the table, which makes it faster. Of course, TRUNCATE TABLE can be rolled back.

46. What are constraints? Explain different types of constraints.

Constraints enable the RDBMS enforce the integrity of the database automatically, without needing you to create triggers, rule or defaults. Types of constraints: NOT NULL, CHECK, UNIQUE, PRIMARY KEY, FOREIGN KEY. For an explanation of these constraints see books online for the pages titled: "Constraints" and "CREATE TABLE", "ALTER TABLE".

47. What is a join and explain different types of joins.

Joins are used in queries to explain how different tables are related. Joins also let you select data from a table depending upon data from another table. Types of joins: INNER JOINs, OUTER JOINs, CROSS JOINs. OUTER JOINs are further classified as LEFT OUTER JOINS, RIGHT OUTER JOINS and FULL OUTER JOINS.

48. What is the difference of a LEFT JOIN and an INNER JOIN statement?

A LEFT JOIN will take ALL values from the first declared table and matching values from the second declared table based on the column the join has been declared on. An INNER JOIN will take only matching values from both tables.

49. What is a Cartesian product? What causes it?

A Cartesian product is the result of an unrestricted join of two or more tables. The result set of a three table Cartesian product will have x * y * z number of rows where x, y, z correspond to the number of rows in each table involved in the join. It is causes by specifying a table in the FROM clause without joining it to another table.

50. What are triggers? How many triggers you can have on a table? How to invoke a trigger on demand?

Triggers are special kind of stored procedures that get executed automatically when an INSERT, UPDATE or DELETE operation takes place on a table. In SQL Server 6.5 you could define only 3 triggers per table, one for INSERT, one for UPDATE and one for DELETE

CSL333 DBMS LAB -VIVA QUESTIONS:-SET 2

1. Difference between group functions and single row functions.
2. Difference between TRUNCATE and DELETE
3. What are various joins used while writing SUBQUERIES

4. What are various constraints used in SQL
5. What are different Oracle database objects
6. What is a view ?
7. What are various privileges that a user can grant to another user
8. What is difference between UNIQUE and PRIMARY KEY constraints
9. Can a primary key contain more than one columns
10. How you will avoid duplicating records in a query
11. Which datatype is used for storing graphics and images
12. How will you delete duplicating rows from a base table
13. What is difference between SUBSTR and INSTR
14. There is a '%' sign in one field of a column. What will be
15. the query to find it.
16. When you use WHERE clause and when you use HAVING clause
17. Which is more faster - IN or EXISTS
18. What is a OUTER JOIN
19. What is schema?
20. Can objects of the same Schema reside in different tablespaces.?
21. Can a Tablespace hold objects from different Schemes ?
22. What is Table?
23. Does View contain Data?
24. Can a View based on another View ?
25. What are the advantages of Views ?
26. What is a data segment ?
27. What is advantage of having disk shadowing/ Mirroring ?
28. What are the different methods of backing up oracle database

29. What are the types of SQL Statement
30. What is a transaction
31. What is the Subquery ?
32. Explain UNION,MINUS,UNION ALL, INTERSECT ?
33. What is ROWID ?
34. What is the fastest way of accessing a row in a table ?
35. What is ON DELETE CASCADE ?
36. What are the data types allowed in a table ?
37. What is difference between CHAR and VARCHAR2 ? What is the maximum SIZE allowed for each type ?
38. Where the integrity constrints are stored in Data Dictionary ?
39. How will you a activate/deactivate integrity constraints ?
40. If an unique key constraint on DATE column is created, will it validate the rows that are inserted with SYSDATE ?
41. How to access the current value and next value from a sequence ? Is it possible to access the current value in a session before accessing next value ?
42. What is difference between Rename and Alias
43. How you will avoid your query from using indexes
44. What is a pseudo column. Give some examples
45. Suppose customer table is there having different columns
46. like customer no, payments. What will be the query to select top three max payments.
47. What is the purpose of a cluster.
48. What is a Synonym ?
49. What are synonyms used for ?
50. What are the type of Synonyms?
51. What is an Index ?
52. How are Indexes Update ?

53. What is a Data File ?
54. What are the Characteristics of Data Files ?
55. What is a Redo Log ?
56. What is a Data Dictionary ?
57. What is an Integrity Constrains ?
58. Can an Integrity Constraint be enforced on a table if some existing table data does not satisfy the constraint ?
59. Describe the different type of Integrity Constraints supported by ORACLE ?
60. Describe Referential Integrity
61. What is self-referential integrity constraint ?
62. What is the maximum number of CHECK constraints that can be defined on a column ?
63. What does ROLLBACK do ?
64. What is SAVE POINT ?
65. What is the function of Optimizer ?
66. What is Execution Plan ?
67. What is CYCLE/NO CYCLE in a Sequence ?
68. If a View on a single base table is manipulated will the changes be reflected on the base table ?
69. What are the components of a PL/SQL Block ?
70. . What are the datatypes a available in PL/SQL ?
71. . What is difference between % ROWTYPE and TYPE RECORD ?
72. What is an Exception ? What are types of Exception ?
73. .What is Raise_application_error ?
74. . What are the modes of parameters that can be passed to a procedure
75. . What are the two parts of a procedure
76. .What are two parts of package ?
77. . Is it possible to modify a Datatype of a column when column containsdata ?

78. What is a cursor.
79. Difference between an implicit & an explicit cursor.
80. What are cursor attributes
81. What is a cursor for loop.
82. Difference between NO DATA FOUND and %NOTFOUND
83. What a SELECT FOR UPDATE cursor represent.
84. What is use of a cursor variable? How it is defined
85. How you open and closeacursor variable.Why it is required
86. What is Execution Plan ?
87. What are the different approaches used by Optimizer in choosing an execution plan?
88. What are the different types of PL/SQL program units that can be defined and stored in ORACLE database?
89. What is a Package
90. What do you mean by concurrency control?
91. What are the different types of locks used to ensure serializability?
92. What do you mean by a deadlock?
93. What is Two-phase locking protocol?
94. What are the conditions to be satisfied for the concurrency control manager to grant the request for the locks?
95. What is upgrading?
96. What is downgrading?
97. What is graph based protocol?
98. What is a timestamp?
99. What is W-timestamp and R-timestamp?
100. What are the rules to be satisfied for read and write operations when using
101. timestamp?

102.What is Thomas' write rule?

103.How is the value for each transaction assigned

104.What are aggregate functions?

105.What do you mean by relational model?

106.What do you mean by network model?

107.What do you mean by hierarchical model?

108.What is a tuple?

109.What are the basic clauses in SQL?

110.What is an attribute?

111.Which is the rename operator used in SQL?

112.Which are the set operators used in SQL?

113.Which are the string operators in SQL?

114.Guidelines for a good database design

115.What operator performs pattern matching?

116.What operator tests column for the absence of data?

117.What command is used to get back the privileges offered by the grant command?

118.What is JDBC

119.What is ODBC?

120.How we can do JDBC-ODBC interface?

121.What is file structure?