DBMS VIVA VOCE QUESTIONS & ANSWERS

1. **What is a database?**
A DBMS is a complex software system that is used to manage, store and manipulate data and metadata used to describe the data.
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.**
Ø Redundancy is controlled.
Ø Unauthorised access is restricted.
Ø Providing multiple user interfaces.
Ø Enforcing integrity constraints.
Ø Providing backup and recovery.

5**. Disadvantage in File Processing System**
Ø Data redundancy & inconsistency.
Ø Difficult in accessing data.
Ø Data isolation.
Ø Data integrity.
Ø Concurrent access is not possible.
Ø Security Problems.
6. **What is a key? what are different keys in database?**
A Key is nothing but a attribute or group of attributes. They are used to perform some specific operation depending on their operation. The keys are classified into primary key, secondary key, alternative key, super key, candidate key, compound or concatenated or composite key.
7. **What is a primary key?**
A primary key is an attribute to identify a record uniquely is considered to be primary key. for eg in the student table student_no is the primary key because it can be used to identify unique record or unique student.
8. **What is a secondary key?**
An attribute used to identify a group of records satisfying a given condition is said to be a secondary key. In the employee table, designation is a secondary key because more than one employee can have the same designation.

9. **What is a candidate key?**
Register no usually allotted in the exams is also unique for each student in that case for identifying a student uniquely either student_no or register_no can be used. Here two different candidates are contesting for primary key post. Any of them can be selected as primary key.
10. **What is an alternate key?**

If any one of the candidate keys among the different candidate keys available is selected as primary key then remaining keys are called alternate key.

11. **What is a super key?**

With primary key if any other attribute is added then that combination is called super key. In other words, primary key is the minimum possible super key. In the student table student_no + student_name is one of the super key.

12. **What is a composite key?**

If the primary key is combination of more than one key then it is called the composite key. In the table called marks student_no + subject is the composite key.

13. **What is a relation?**

A Relation consists of a homogeneous set of tuples.

14. **What is a table?**

it is the representation of a relation having records as rows and attributes as columns.

15. What is an attribute?

An object or entity is characterized by its properties or attributes. In relational database systems attributes corresponds to fields.

16. **What is a domain?**

The set of allowable value for the attribute is the domain of the attribute.

17. **What is a tuple?**

Tuples are the members of a relation. An entity type having attributes can be represented by set of these attributes called tuple.

18. **What is a selection?**

An operation that selects only some of the tuples in the relation is known as selection operation. The selection operation yields a horizontal subset of a given relation.

19**. What is a join operation?**

The join operation allows the combination of two relations to form a new relation.

20. **What are base operations in relational algebra?**

Union: - The term of the relation as performed by combining the tuples from one relation with those of a second relation to produce a third relation. Duplicate tuples are eliminated. The relation
must be union compatible.

Difference: - The difference of two relations is a third relation having tuples that occur in the first
relation but not in the second relation.

Intersection: - The intersection operation selects the common tuples from the two relations.

cartesian product: - The cartesian product of two relations is the concatenation of tuples belonging to the two relations. A new resultant scheme is created consisting of concatenation of all
possible combination of tuples.

21. **What are different DBMS facilities? How many types of facilities are provided by a DBMS?**

1)The data definition facility or data definition language(DDL)
2)The data manipulation facility or data manipulation language(DML)
3)The data control facility(DCL)

22. **What is Data Definition Language?**

Data scheme is specified by a set of definitions which are expressed b a special language called a

DDL.

23. **What is Data Dictionary?**

A Data Dictionary is a file that contains metadata i.e data about data. This file is consulted before actual is read or modified in the database system.

24. **What is a DML?**

A DML is a language that enables users to access or manipulate data as organized by the appropriate data model. There are basically two types:

1)procedural DML require a user to specify what data is needed and how to get it.

2)non procedural DML require a user to specify what data is needed without specifying how to get it.

25. **What is a query?**

A query is a statement requesting the retrieval of information.

26. **What is a query language?**

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

27. **What are the advantages of DBMS?**

Reduction of redundancies, Integrity, Security, Conflict resolution, Data independence, shared data, Data quality enhanced.

28. **What is a SQL?**

Structured query language(sql) originated in 1974 at IBM.SQL is the data definition and manipulation language.

29. **What are the features of SQL?**

Portability, client server architecture, dynamic data definition, multiple views of data, complete data base language, interactive, high level structure and SQL standards.

30. **How SQL organizes the data?**

SQL organizes data as databases, tables, indexes, views.

31. **What is data definition?**

SQL lets a user to define the data structure and relationship at the stored data.

32. **What is data retrieval?**

Allows a user or an application program to retrieve the stored data.

33. **What is data sharing?**

Data can be shared by more than one user.

34. **What is a view?**

It is an object of SQL. A query can be defined, stored and named. This is called view.

35. **What is normalization?**

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

Ø Minimizing redundancy

Ø Minimizing insertion, deletion and update anomalies.

36. **What is a first normal form?**

A relation which contains no multi valued attributes.

37. **What is a second normal form?**

A relation is in second normal form for if it is first normal form and every non key attribute is fully functionally dependent on primary key.

38. **What is a third normal form?**

A relation is in third normal form if for every functional dependency F :x->y is aDkey.

39. **What is BCNF?**

Boyce-code normal form.

40. **What is fifth normal form?**

A relation which eliminates join dependencies.

41. **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.

42. **What is Lossless join property?**

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

43. **What are the commands to delete, modify and insert a record in the table?**

DELETE, UPDATE, INSERT INTO.

44. **What is time stamping?**

In the time stamping based method, a serial order is created among the concurrent transactions by assigning to each transaction a unique non decreasing numbers .you will be allocating fixed time for each transaction.

45. **What is data base schema?**

It is the description of the database i.e its data structure and not the detail.

46. **What is a self join?**

Joining the table to the same table.

47. **What are the different aggregate functions in SQL?**

AVG(), MIN(), MAX(), COUNT(), SUM().

48. **What is data integrity?**

Data must satisfy the integrity constraints of the system.

49. **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:

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

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

NOTE: Logical Data Independence is more difficult to achieve

50. **What is dead locking?**

It is the situation where two transactions are waiting for other to release a lock on an item.

51. What is decryption?

Taking encoded text and converting it into text that you are able to read.

52. **What is a distributed database?**

A Database in which the datails contained within a number of separate subsystems usually in different locations.

53. **What is an entity?**

it represents a real world object.

54. What is a conceptual data model?

A conceptual data model is concerned with the general description of the database without concern for how the data may be organized.

55. **What is two phase locking?**

It is a most common mechanism that is used to control concurrency in two phases for achieving the serializability. The two phases are Growing and Shrinking.
1) A transaction acquires locks on data items it will need to complete the transaction. This is called growing phase. A transaction may obtain lock but may not release any lock.
2) One lock is released no other lock may be acquired. This is called shrinking process. A transaction may release locks but may not obtain any new locks.

56. **What is projection?**

The projection of a relation is defined as projection of all its tuples over a set of attributes. it yields vertical subset of the relation. The projection operation is used to trim the number of attributes in the resultant relation or to reorder attributes.

57. **What are the different phases of transaction?**

Different phases are
Ø Analysis phase
Ø Redo Phase
Ø Undo phase

58. . **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.