# ADTA Viva Questions and Synoptic Answers

1. **What is ADT?**
   Abstract data type(ADT) is "**user defined data type**".
   Abstract data types are data types that consist of one or more subtypes.
   Users can create their own data types. ADTs are like structures or class, they are abstract.
   e.g. if we create an ADT address_type then while creating customer table address column of customer table can be of type address_ type instead of varchar type
2. **Name the built in types available in Oracle.**
   Date, Number, Varchar, Char etc
3. **Difference between char and varchar**.
4. **Can ADTs be nested?**          Yes
   eg. First create name_ty, address_ty then create person_ty using first 2 types
5. **Can ADTs have methods?**       Yes
6. **Write query to create ADT with method.**
7. **Are Method overloading and overriding possible?**     Yes
8. **What are collection data types?**
   Collection types are the types which handles multivalued attributes e.g multiple phone no.s can be stored in one collection type of column for each custormer.
   These are of 2 types:     Varying Array, Nested table
9. **What is Varray or Purpose of creating varray**
   Variable array type created to store multiple values in single column
   Upper limit of the varray should be mentioned at the time of creation only.
10. **What is nested table or Purpose of creating them**

    Nested tables have no limit on the number of entries per row.
    A nested table is, as its name implies, a table within a table. In this case, **it is a table that is represented as a column** within another table.
    You can have multiple rows in the nested table for each row in the main table.

11. **Diff between varray and nested table**

    Nested tables are unbounded, while arrays have a fixed upper bound .The size of a nested table can increase dynamically.
    A nested table is quite similar to a VARRAY with the exception that the order of the elements is not static. Elements can be deleted or added anywhere in the nested table where as a VARRAY can only add or delete elements from the end of the array. Nested Table is known as a sparse collection because a nested table can contain empty elements.

12. **How method overloading can be done**?
    By declaring and defining two methods with same name and different signatures.
13. **What is OID? How is it diff from URL?**
    - OIDs are "Object identifiers". It is a unique identifier assigned by the system to each object in the database.
    - OID is that it be immutable means OID value of a particular object cann't change
    - each OID be used only once, that is even the object is removed from the database its OID cannot be assigned to another object
    - OID cannot be modified by the user

URL are not system generated, not immutable. URL is dependent on the physical location of the object, network addresses etc.

**14. What is reference or ref type?**

A REF type may be declared as the type of an attribute or as the type of a column. Ref type of column contains OID value.

**15. What is type evolution?**

*Object type can be modified after they are created. New attributes and methods can be added and existing attributes and methods can be dropped.*

The process of changing an object type according to the requirement is called as type evolution. This allows application to be evolved without having to be designed entirely in advance

**16. What are object views?**

- Object Views as a means for defining objects used by existing relational tables.

- For example, there is a previously created relational database application and you want to implement object-relational concepts into your application without rebuilding and recreating the entire application .you need to overlay object-oriented (OO) structures such as abstract data types on existing relational tables.

17. What are the benefits of using object views?

- Object views allow us to create abstract datatypes within tables that already exist.
- Object views give us the benefits of relational table storage and OO structures.
- Object view allows us to begin to develop OO features within relational database –a bridge between the relational and OO worlds.

18. What is data partitioning?

Partitioning makes it easier and faster to manage any amount of data. Partitioning is a data organization scheme in which table data is divided across multiple storage objects called *data partitions* or *ranges* according to values in one or more table columns.

Maintenance of large tables and indexes can become very time and resource consuming. At the same time, data access performance can reduce drastically for these objects. In such situations partitioning of tables and indexes can benefit the performance and maintenance.

**19. What are diff types of partitioning techniques?** Range, List, Hash, Composite (Range-hash, range-list)

**Range**: Partitioning is done based on range of numbers
**List**: Partitioning is done based on some text values like 4 list partitions for 4 regions North, South, East, West
**Hash**: Partitioning is done based on hash function used by Oracle.

### Composite partitioning

- Composite partitioning allows range partitions to be hash or list sub partitioned on a different key.
- The greater number of partitions increases the possibilities for parallelism and reduces the chances of contention.

20. What are the benefits of partitioning?

    Managing large amount of data becomes easy and fast.

    Partitioning benefits performance and maintenance.

21. What is bitmap index?

    Bitmap index is used in data warehousing environment. It is stored in 2 D array structure, like

    | Rowid | Bitmap |
    |-------|--------|
    |       |        |
    |       |        |

    Length of bitmap = no of unique values in the column on which bitmap index is created.

22. In what type of environment bitmap index is used?

23. How it is different from b tree index?

    B-tree indexes are used when we have too many distinct column values and bitmap indexes are used for low selectivity columns (means columns which have less no of distinct values).

    Bitmaps are used usually in data warehousing environments where a table has got thousands of rows.

24. What are analytical functions?

    Used to do data analysis. E.g. rank(), dense_rank(), row_number(), Ntile(), cube(), Rollup() etc.

25. What is rank(), dense_rank()

    RANK() & Dense_RANK()

    - RANK is an analytic function that can be used to get the rank of a row in respect to a group of rows.
    - The rank function can cause non-consecutive rankings if the tested values are the same. Whereas, the dense_rank function will always result in consecutive rankings.

26. What is cube?

    - CUBE is an extension similar to ROLLUP, enabling a single statement to calculate all possible combinations of subtotals.
    - CUBE can generate the information needed in cross-tabulation reports with a single query

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27. What is Rollup?

    - Is an extension to the Group By clause.
    - ROLLUP creates subtotals at increasing levels of aggregation, from the most detailed up to a Grand total

28. What is distributed database?

29. What is data partitioned parallelism, pipelined parallelism?

30. What is distributed data independence?

31. What is 2PC. Why it is required?

32. What techniques are used to store data in distributed databases?

33. What is fragmentation and its types.

34. What is replication and its types.

35. What are characteristics of DW.

36. What is data mart

37. What are the 2 approaches to create DW

38. What is metadata of DW? Is metadata of DW different from metadata of DM?

39. What is ETL?

40. What is data quality? Why it is important.

41. What is the importance of Cleansing in ETL Process.

42. What are 3 schema designs of DW or 3 techniques of dimensional modeling .

43. What is star schema and its benefits

44. What is snowflake schema and its benefits

45. What is OLAP

46. Diff b/w OLTP and DW

47. Diff b/w OLAP and DW

48. Dif b/w OLAP and Data mining

49. What are various OLAP types

50. What is diff b/w MOLAP and ROLAP

51. What are 7 OLAP operations

52. What is data mining? How it is diff from KDD

53. What are various mining techniques?

54. What is clustering. Mention the algos which have been studied.

55. What is classification. Mention the algos which have been studied.

56. What is Association. Mention the algos which have been studied.

57. Why classification is called supervised learning technique

58. Why clustering is called unsupervised learning technique

59. What is Apriory algo.

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60. What is apriory property

61. What is support and confidence? What is its interpretation? How it is computed?

62. What is decision tree?

63. What is ID3/CART/ C4.5

64. What is agglomerative algo.

65. What is neural network

66. What is k means clustering algo, nearest neighbor algo?

67. What is web mining

68. Diff b/w ORDBMS and RDBMS

69. Diff b/w OODBMS and ORDBMS