

Model Answer MSc (CS) 3rd DEC 2013 AS-2270

1. State True or False

- (a) A primary key might be created by combining two or more fields. In this situation, it is called a concatenated key.

Answer: True LOD: Easy

- (b) An index is frequently created for keys.

Answer: True LOD: Easy

- (c) Foreign keys are pointers to the records of a different file in a database.

Answer: True LOD: Easy

- (d) Duplication of data items in multiple files is normally cited as the principal disadvantage of file-based systems.

Answer: True LOD: Easy

- (e) A database is not necessarily dependent on the applications that use it. Given the large capacity disks that are now available, database administrators no longer have to be concerned about estimating how much disk capacity is required for a new database.

Answer: True or False LOD: Medium

Rationale: 1st Statement is correct and It is still important for the database administrator to estimate how much disk capacity is required for a new database to ensure that sufficient disk space is available. One never knows how much of that space is already consumed by other applications and their data.

- (f) It is important for the database administrator to estimate how much disk capacity is required for a new database to ensure that sufficient disk space is available.

Answer: True LOD: Easy

- (g) Conventional files are relatively difficult to design and implement because they are normally designed for use with multiple applications or information systems.

Answer: False LOD: Medium

Rationale: Conventional files are relatively easy to design and implement because they are normally designed for use with a single application or information system.

- (h) Files tend to be built around single applications without regard to other, future applications.

Answer: True LOD: Easy

- (i) A significant disadvantage of conventional files is their inflexibility and non-scalability.

Answer: True LOD: Easy

- (j) A significant advantage of conventional files is their flexibility and scalability.

Answer: False LOD: Medium

Rationale: A significant disadvantage of conventional files is their inflexibility and non-scalability.

2. Fill in the blanks:

The _____ key for a record must never be allowed to have a NULL value.

Answer: primary

(b) _____ integrity means that appropriate controls must be designed to ensure that no field takes on a value that is outside the range of legal values.

Answer: Domain

(c) _____ integrity means that the architecture of relational databases implements the relationships between the records in tables via foreign keys.

Answer: Referential

(d) A(n) _____ error exists when a foreign key value in one table has no matching primary key value in the related table.

Answer: referential integrity

(e) A(n) _____ is an alternate name for a foreign key that clearly distinguishes the purpose that foreign key serves in the table.

Answer: role name

(f) _____ establishes which business locations need access to which logical data entities and attributes.

Answer: Data distribution analysis

(g) _____ of a database means that it would be implemented on a single server regardless of the number of physical locations that may require access to it.

Answer: Centralization

(h) _____ distribution of the data means that each table or entire rows in a table would be assigned to different database servers and locations. This option results in efficient access and security because each location has only those tables and rows required for that location.

Answer: Horizontal

(i) _____ distribution of the data has the unfortunate side effect that data cannot always be easily recombined for management analysis across sites.

Answer: Horizontal or Vertical

(j) _____ distribution of the data has specific columns of tables assigned to specific databases and servers.

Answer: Vertical

3. (a) There are RDBMS, which support temporary tables. Temporary Tables are a great feature that lets you store and process intermediate results by using the same selection, update, and join capabilities that you can use with typical SQL Server tables.

The temporary tables could be very useful in some cases to keep temporary data. The most important thing that should be known for temporary tables is that they will be deleted when the current client session terminates.

The command for creating temporary tables differ according to RDBMS but the function is same.

(b) We can perform a correlated nested query(subquery) when a nested subquery references a column from a table referred to a parent statement one level above the subquery. The parent statement can be a SELECT, UPDATE, or DELETE statement in which the

subquery is nested. A correlated subquery conceptually is evaluated once for each row processed by the parent statement. However, the optimizer may choose to rewrite the query as a join or use some other technique to formulate a query that is semantically equivalent. Oracle resolves unqualified columns in the subquery by looking in the tables named in the subquery and then in the tables named in the parent statement.

A correlated subquery answers a multiple-part question whose answer depends on the value in each row processed by the parent statement. For example, you can use a correlated subquery to determine which employees earn more than the average salaries for their departments. In this case, the correlated subquery specifically computes the average salary for each department.

example:

```
SELECT select_list
FROM table1 t_alias1
WHERE expr operator
(SELECT column_list
FROM table2 t_alias2
WHERE t_alias1.column
operator t_alias2.column);
```

- (c) The ORDER BY keyword is used to sort the result-set by one or more columns.

The ORDER BY keyword sorts the records in ascending order by default. To sort the records in a descending order, you can use the DESC keyword.

SQL ORDER BY Syntax:

```
SELECT column_name,column_name
FROM table_name
ORDER BY column_name,column_name [DESC];
```

4. Instead of having a fixed answer , this question will have multiple answers depending on the imagining power of the students. In **Railway Reservation System**, students have to find out multiple **entity sets**(such nouns for which a separate table is mandatory), different types of **attribute** mentioned in question, **relationships** among these entity sets, atleast one **specialization** and **weak entity** and its relationship.

Students should be aware of notations used for above objects. They should be aware how to plot them according to the relations. Then they have to draw an E-R Diagram which should be neat and clean with the **cardinality** mentioned on the connectives.

Name of entity sets and their attributes are not fixed. The diagram should be readable from *left to right* and *top to bottom*.