File Version Update: Dated(14-May-2011)

This version of file contains:

- Content of the Course   (Done)
- FAQ updated version.(These must be read once because some very basic definition and question are being answered) (Done)

Glossary updated version.(These must be read once because some very basic terms are being explained which you even might not found in the book) (Done)

Solved Past Assignment Selected for MID Term. (Done)
Solved Question From Mid-Term Papers   (Done)
Solved MCQs From Mid-Term Papers   (Done)
2 Current (Spring 2011)Solved Mid-Term Papers   (Done)

The file contains more than 700 MCQs from past Quizzes and Papers.
They are provided in the end . Check Content for Details and quick jump,
Use bookmark option in the pdf file .

----:Table of Content:----

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Introduction To Database Management Systems.

Course Content:

Introduction to Basic Database Concepts, Database Architecture, Database Planning, Conceptual Database Design, Logical Database Design, Transforming E-R Design to Relational one, Data Definition Languages, Data Manipulation Languages, Normalization and Denormalization, Physical Database Design, Database Tools, Structured Query Language (SQL), Data Storage Concepts, Indexes and Views, Transaction Management, Concurrency Control

FAQ updated version.

Question: **What are major differences between traditional file processing system and database?**

Answer: The main differences are of data sharing, data independence, data integrity and controlled redundancy.

Question: **What is the difference between data and information?**

Answer: Data is raw collection of facts and figures collected from a specific environment. Once we process the data using different methods the data is converted into useful information.

Question: **What is data consistency?**

Answer: Data consistency means that the changes made to different occurrence of data should be controlled and managed in such a way that all the occurrences have same value for any specific data item.

Glossary (Updated Version)

Atomicity : Atomicity states that database modifications must follow an "all or nothing" rule. Each transaction is said to be "atomic". If one part of the transaction fails, the entire transaction fails. It is critical that the database management system maintain the atomic nature of transactions in spite of any DBMS, operating system or hardware failure.

Attribute : An attribute is a named column of a relation.

Business Logic : The sequence of events that take place behind any business process

Candidate Key : A candidate key is a combination of attributes that can be uniquely used to identify a database record without any extraneous data. Each table may have one or more candidate keys. One of these candidate keys is selected as the table primary key.

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Cardinality : The cardinality of a relation is the number of tuples it contains.

Conceptual Level : The community view of the database. This level describes what data is stored in the database and the relationship among the data.

Consistency : Consistency states that only valid data will be written to the database. If, for some reason, a transaction is executed that violates the database's consistency rules, the entire transaction will be rolled back and the database will be restored to a state consistent with those rules. On the other hand, if a transaction successfully executes, it will take the database from one state that is consistent with the rules to another state that is also consistent with the rules.

Cursor : Cursors are database objects used to traverse the results of an SQL query. They point to a certain location within a recordset and allow the operator to move forward (and sometimes backward, depending upon the cursor type) through the results one record at a time.

Data : Data can be describe as "Collection of raw facts and figures".

Data Manipulation Language (DML) : A language that provide a set of operations that support the basic data manipulation operations on the data held in the database.

Data Definition Language (DDL) : A descriptive language that allows the DBA or user to describe and name the entities required for the application and the relationships that may exist between the different entities.

Data dictionary : The description of data is known as data dictionary."Centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format".

Data Independence : Data Independence means that upper levels are unaffected by changes to lower levels.

Data Model : An integrated collection of concepts for describing data, relationships between data and constraints on the data in an organization.

Data warehouse : A repository where data from multiple databases is brought together for more complex analysis.

Database : A shared collection of logically related data(and a description of this data), designed to meet the information needs of an organization.

Database Schema : The overall description of the database is called database schema.

DBMS : A software system that enables users to define, create and maintain the database and provides controlled access to this database.

Degree : The Degree of a relation is the number of attributes it contains.

Domain : A domain is the set of possible values for one or more attributes.

Durability : Durability ensures that any transaction committed to the database will not be lost. Durability is ensured through the use of database backups and transaction logs that facilitate the restoration of committed transactions in spite of any subsequent software or hardware failures

Enterprise : An enterprise is an organization that utilizes computers and applications. In general use, enterprises refer to businesses/organizations that operate on a large scale. Applications that are designed for these organizations are often referred to as enterprise applications.

Enterprise constraints : Additional rules specified by the users or database administrators of a database.

Entity : An entity is a single object about which data can be stored. It is the "subject" of a table. Entities and their interrelationships are modeled through the use of entity-relationship diagrams.

Entity integrity : in base relation, no attribute of a primary key can be null.

Entity-Relationship Diagram : An entity-relationship diagram is a specialized graphic that illustrates the interrelationships between entities in a database.

External View : The User's view of the database. This level describes that part of the database that is relevant to particular user.

File-based System : A collection of application programs that perform services for the end users such as the production of reports. Each program defines and manages its own data.

Foreign Key : An attribute or set of attributes within one relation that matches the candidate key of some (possibly the same) relation.

Functional Dependency : A functional dependency occurs when one attribute in a relation uniquely determines another attribute. This can be written A -> B which would be the same as stating "B is functionally dependent upon A."

Internal View : The physical representation of the database on the computer. This level describes how the data is stored in the database.

Logical Data Independence : Logical Data Independence refers to immunity of external schema to changes in the conceptual schema.

Metadata : The description of data is known as Metadata.

Non-procedural DML : A language that allows the user to state what data is needed rather than how it is to be retrieved.

Null : Represents a value for an attribute that is currently unknown or is not applicable for this tuple.

ODBC : A standard that allows a database to be exchanged and opened by other compliant database software, independent of the database's file format or what program was originally used to create it.

Physical Data Independence : Physical Data Independence refers to immunity of the conceptual schema to changes in the internal schema.

Primary Key : The candidate key that is selected to identify tuples uniquely within the relation.

Procedural DML : A language that allows the user to tell the system exactly how to manipulate the data.

Query : Deep analysis is carried out by performing multilayer queries. Because all the databases are linked, you can search for what products a store has too much of. You can then determine which of these products commonly sell with popular items, based on previous sales. After planning a promotion to move stock, you can dig deeper to see where this promotion would be most popular (and most profitable).

Referential integrity : If foreign key exists in a relation, either the foreign key value must match a candidate key value of some tuple in its home relation or the foreign key value must be wholly null.

Relation : A relation is a table with columns and rows.

Relational database. : A collection of normalized relations.

Relational Schema : A relation name followed by a set of attributes and domain name pairs.

Super key : An attribute or set of attributes that unquely identifies a tuple within a relation.

System Catalog : The description of data is known as system catalog.

Tuple : A tuple is a row of a relation.

Current Session Spring 2011 Mid term My Paper(Ishfaq)

Mid Term Question Scheme:

Total 26 = 26
MCQs = 20 (01 Mark each)
Two long question = 05 Marks
02 long questions = 03 Marks
02 Long questions = 02 Marks

Note : My All paper and MCQs came from this file that I prepared

Two long question = 05 Marks
Question No.01: Define these terms with examples (5-Marks)
Weak Entity , Entity Type
Question No.02: What are the benefits of using default values   (5-Marks)
Question No.03: What the types of anomalies?   (3-Marks)
Question No.04: How One-to-One Relation is established between tables (3-Marks)
Question No.5: What major problem can occur if we do not normalize a relation into the first normal form?   (2-Marks)

Current Session Spring 2011 Mid term Paper Number-01

Mid Term Question Scheme:e? (2-Marks)

Total Marks = 36
MCQs = 16 (01 Mark each)
One long question = 05 Marks
03 long questions = 03 Marks
03 Long questions = 02 Marks

Describe with example function of Union Operation in relational algebra (05 Marks)

There are five basic operations in relational algebra: Selection, Projection, Cartesian product, Union, and Set Difference.

Procedural Languages:

These are those languages in which what to do and how to do on the database is required. It means whatever operation is to be done on the database that has to be told that how to perform.

Non -Procedural Languages:

These are those languages in which only what to do is required, rest how to do is done by the manipulation language itself.

The Union Operation:

We will now study the binary operations, which are also called as set operations. The first requirement for union operator is that the both the relations should be union compatible. It means that relations must meet the following two conditions:
• Both the relations should be of same degree, which means that the number of attributes in both relations should be exactly same
• The domains of corresponding attributes in both the relations should be same. Corresponding attributes means first attributes of both relations, then second and so on.
It is denoted by U. If R and S are two relations, which are union compatible, if we take union of these two relations then the resulting relation would be the set of tuples either in R or S or both. Since it is set so there are no duplicate tuples. The union operator is commutative which means: -
R U S = S U R
For Example there are two relations COURSE1 and COURSE2 denoting the two tables storing the courses being offered at different campuses of an institute? Now if we want to know exactly what courses are being offered at both the campuses then we will take the union of two tables:

COURSE1

crId	progId	credHrs	courseTitle
C2345	P1245	3	Operating Sytems
C3456	P1245	4	Database Systems
C4567	P9873	4	Financial Management
C5678	P9873	3	Money & Capital Market

COURSE2

crId	progId	credHrs	courseTitle
C4567	P9873	4	Financial Management
C8944	P4567	4	Electronics

COURSE1 U COURSE2

crId	progId	credHrs	courseTitle
C2345	P1245	3	Operating Sytems
C3456	P1245	4	Database Systems
C4567	P9873	4	Financial Management
C5678	P9873	3	Money & Capital Market
C8944	P4567	4	Electronics

Fig. 5: Two tables and output of union operation on those tables

So in the union of above two courses there are no repeated tuples and they are union compatible as well

Describe with example Referential integrity constraints (03 Marks)

Entity Integrity Constraint:

It states that in a relation no attribute of a primary key (PK) can have null value. If a PK consists of single attribute, this constraint obviously applies on this attribute, so it can not have the Null value. However, if a PK consists of multiple attributes, then none of the attributes of this PK can have the Null value in any of the instances.

Referential Integrity Constraint:

This constraint is applied to foreign keys. Foreign key is an attribute or attribute combination of a relation that is the primary key of another relation. This constraint states that if a foreign key exists in a relation, either the foreign key value must match the primary key value of some tuple in its home relation or the foreign key value must be completely null.

When Referential integrity rules are enforced, a tuple in one relation that refers to another relation must refer to an existing tuple.

Describe functional dependency (03 Marks)

Functional Dependency :   A functional dependency occurs when one attribute in a relation uniquely determines another attribute. This can be written A -> B which would be

the same as stating "B is functionally dependent upon A."Here A is called Determinent and B is called Dependent.

Give at least 02 benefits of Normalization (02 Marks)

Normal Forms

Normalization is basically; a process of efficiently organizing data in a database. There are two goals of the normalization process: eliminate redundant data (for example, storing the same data in more than one table) and ensure data dependencies make sense (only storing related data in a table). Both of these are worthy goals as they reduce the amount of space a database consumes and ensure that data is logically stored.

What is Data Definition Language (DDL) ? (02 Marks)

Data Definition Language (DDL) :   A descriptive language that allows the DBA or user to describe and name the entities required for the application and the relationships that may exist between the different entities. For example create delete databases.

What is data type? (02 Marks)

Data type is defined as a set of values along with the operations that can be performed on those values. Some common data types are Integer, Float, Varchar, Char, String, etc.

Mid-Term Past Papers (Solved Version)

Note MCQs are provided in Last Section.

Question No: 15 Give types of relations (02 Marks)

Unary Relationship

An ENTITY TYPE linked with itself , also called **recursive relationship**. Example
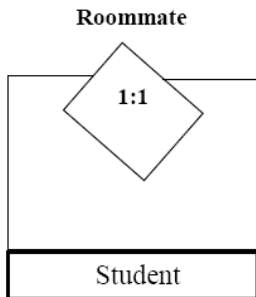
Roommate, where STUDENT is linked with STUDENT

Binary relationship

A Binary relationship is the one that links two entities sets e.g. STUDENT-CLASS. Relationships can be formally described in an ordered pair form.

Enroll = {(S1001, ART103A), (S1020, CS201A), (S1002, CSC201A)}
Entire set is relationship set and each ordered pair is an instance of the relationship.

Ternary Relationship

A Ternary relationship is the one that involves three entities e.g.
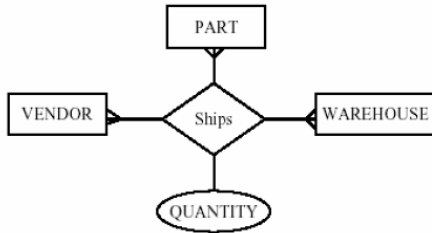
STUDENT-CLASS-FACULTY.

N-ary Relationship

Most relationships in data model are binary or at most ternary but we could define a relationship set linking any number of entity sets i.e. n-ary relationship

Entity sets involved in a relationship set need not be distinct. E.g.

Roommate = {(Student1, Student2) | Student1 □□Student Entity Set, Student2 □□Student

Entity Set and Student 1 is the Roommate of Student2}

Question No: 16 Briefly explain what is Partial Dependency (02 Marks)

Dependencies

Dependency is a type of constraint, for example once we define the cardinality or relationship among two entities it also is a constraint or check that tells that cardinality should be followed while populating data in relations. Similarly the dependency is a constraint. There are a number of dependency types which are expressed below:

The Partial dependency:

This is the type of dependency which exists when one entity instance partially needs instance of another entity for its existence. Consider the following relation.

CLASS (crId, stId, stName, fId, room, grade)

crId, stId-> stName, fId, room, grade

stId -> stName

crId -> fId, room

Here course ID is partially dependent on faculty ID and room,so it is not in second normal form.

The Existence dependency:

This is the type of dependency which exists when one entity instance needs instance of another entity for its existence. As we have seen earlier in case of employee of and organization and the projects associated with the employees there we see that employees are dependent on projects, it means that if no project is assigned to an employee it can not exist. In other words we can say that at a certain time an employee must be working on at least one project.

Identifier Dependency:

It means that the dependent entity incase of existence dependency does not have its own identifier and any external identifier is used to pick data for that entity. And to define a key in this entity the key of the parent entity is to be used in the key for this entity may be used as composite keys.

Referential Dependency:

This is the situation when the dependent entity has it own key for unique identification

but the key used to show the reference with the parent entity is shown with the help of an attribute of the parent entity. Means to show the link of the parent entity with this entity there will be an attribute and a record in this entity will not exist without having a record in the parent entity. Despite of having its own identifier attribute.

This type of identifier or attribute in the weak entity is known as foreign key.

Functional Dependency

Normalization is based on the concept of functional dependency. A functional dependency is a type of relationship between attributes.

Definition of Functional Dependency

If A and B are attributes or sets of attributes of relation R, we say that B is functionally dependent on A if each value of A in R has associated with it exactly one value of B in R.

We write this as A B, read as "A functionally determines B" or " A determines B".

This does not mean that A causes B or that the value of B can be calculated from the value of A by a formula, although sometimes that is the case. It simply means that if we know the value of A and we examine the table of relation R, we will find only one value of B in all the rows that have the given value of A at any one time. Thus then the two rows have the same A value, they must also have the same B value. However, for a given B value, there may be several different A values. When a functional dependency exits, the attributes or set of attributes on the left side of the arrow is called a determinant. Attribute of set of attributes on left side are called determinant and on right are called dependants. If there is a relation R with attributes (a,b,c,d,e) a b,c,d d e

For Example there is a relation of student with following attributes. We will establish the functional dependency of different attributes: -

STD (stId,stName,stAdr,prName,credits)

stId stName,stAdr,prName,credits

prName credits

Now in this example if we know the stID we can tell the complete information about that student. Similarly if we know the prName , we can tell the credit hours for any particular subject.

Question No: 17 Give at least 03 types of Anomalies which Normalization handles (03 Marks)

Anomaly is defined as wrong or dead state of database.
 There are four types of anomalies, which are of concern, redundancy, insertion, deletion and updation.
☐☐Redundancy
☐☐Insertion Anomaly
☐☐Deletion Anomaly
☐☐Updation Anomaly

Question No: 18 What is Data Definition Language (DDL) ? (03 Marks)DDL

It deals with the structure of database.The DDL (Data Definition Language) allows specification of not only a set of relations, but also the following information for each relation:
• The schema for each relation.
• The domain of values associated with each attribute.
• Integrity constraints.
• The set of indices for each relation.
• Security and authorization information.
• Physical storage structure on disk.

The Data Definition Language (DDL) contains the commands used to create and destroy databases and database objects. After the database structure is defined with DDL, database administrators and users can utilize the Data Manipulation Language to insert, retrieve and modify the data contained within it.

Question No: 19 Briefly explain what is a primary key and give example. (05 Marks)

Primary Key :   The candidate key that is selected to identify tuples uniquely within the relation. A candidate key chosen by the database designer to act as key is the primary key. An entity type may have more than one candidate keys, in that case the database designer has to designate one of them as primary key, since there is always only a single primary key in an entity type. If there is just one candidate key then obviously the same will be declared as primary key. The primary key can also be defined as the successful candidate key. Figure 2 below contains the entity type STUDENT of figure 1 but with an additional attribute nIdNumber (national ID card Number).
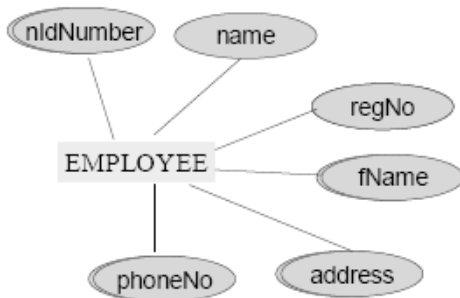
Fig. 2: An entity type, its defining attributes
         and two candidate keys

Any of the candidate keys can be selected as primary key, it mainly depends on the database designer which choice he/she makes.

Question No: 20 What are the benefits of using default values? (05 Marks)

Default value

Default values are the values which are associated with a specific attribute and can help us to reduce the chances of inserting incorrect values in the attribute space. And also it can help us preventing the attribute value be left empty.
- Reduces the chances of entering incorrect attribute value
- Prevents attribute value to be left empty.
- Saves our time by reducing the typing works.
-

Range Control

Range control implemented over the data can be very easily achieved by using any data type. As the data type enforces the entry of data in the field according to the limitations of the data type.

Null Value Control

As we already know that a null value is an empty value and is distinct from zero and spaces, Databases can implement the null value control by using the different data types or their build in mechanisms.

Referential Integrity

Referential Integrity means to keep the input values for a specific attribute in specific limits in comparison to any other attribute of the same or any other relation.

Question No: 17 (Marks: 2)

Data Flow

Answer:
    1.Data store
    2.Entity

Label the following diagramQuestion No: 18 (Marks: 3)

What is the degree of relation?

Degree of a Relation

Degree :   The Degree of a relation is the number of attributes it contains.We will now discuss the degree of a relation not to be confused with the degree of a relationship. You would be definitely remembering that the relationship is a link or association between one or more entity types and we discussed it in E-R data model. However the degree of a relation is the number of columns in that relation.

Question No: 19 (Marks: 3)

Name three kind of basic binary operation on relational algebra

Answer:
    Union
    Set operation
    Cartesian product

Unary Operations are Select and Project.

Question No: 20 (Marks: 2)

What is the data type

Data type is defined as a set of values along with the operations that can be performed on those values. Some common data types are Integer, Float, Varchar, Char, String, etc.

Question No: 22 (Marks: 5)

What is the Cartesian product operation algebra. What is the result of Cartesian result product.

Cartesian product:

The Cartesian product needs not to be union compatible. It means they can be of different degree. It is denoted by X. suppose there is a relation R with attributes

(A1, A2,...An) and S with attributes (B1, B2......Bn). The Cartesian product will be:
R X S, It will a set of ordered pairs {(A1,B1),(A1,B2),.........}
The resulting relation will be containing all the attributes of R and all of S.
Moreover, all the rows of R will be merged with all the rows of S. So if there are m
attributes and C rows in R and n attributes and D rows in S then the relations R x S
will contain **m + n columns and C * D rows.** It is also called as **cross product**.
The Cartesian product is also **commutative and associative**.
For Example there are two relations COURSE and STUEDNT

Cource

crId	courseTitle
C3456	Database Systems
C4567	Financial
C5678	Money & Capital

STUDENT

stId	stName
S101	Ali Tahir
S103	Farah

COURSE X STUDENT

crId	courseTitle	stId	stName
C3456	Database Systems	S101	Ali Tahir
C3456	Database Systems	S103	Farah Hasan
C4567	Financial	S101	Ali Tahir
C4567	Financial	S103	Farah Hasan
C5678	Money & Capital	S101	Ali Tahir
C4567	Financial	S103	Farah Hasan

Question No: 23   (Marks: 5)

Shortly describe Procedural DML and Non procedural DML also give the alternate names.

Procedural Languages:
These are those languages in which what to do and how to do on the database is
required. It means whatever operation is to be done on the database that has to
be told that how to perform. For example , Relation Algebra is procedural DML.
Non -Procedural Languages:
These are those languages in which only what to do is required, rest how to do is done by
the manipulation language itself. For example , Relation Calculus is procedural DML.

Structured query language (SQL) is the most widely language used for
manipulation of data.

Question No: 17   (Marks: 2)

For which purpose do we use relational data model?

The RDM is popular due to its two major strengths and they are:
     o Simplicity
     o Strong Mathematical Foundation

Because there is one structure and that is a relation (table).Plus this single structure is very easy to understand. Due to which a user of a moderate knowledge can understand it easily. It has strong math foundation which gives it extra strength.

Question No: 18   (Marks: 2)

What major problem can occur if we do not normalize a relation into the first normal form?

Normal Forms

Normalization is basically; a process of efficiently organizing data in a database. There are two goals of the normalization process: eliminate redundant data (for example, storing the same data in more than one table) and ensure data dependencies make sense (only storing related data in a table). Both of these are worthy goals as they reduce the amount of space a database consumes and ensure that data is logically stored. We will now study the first normal form.There are four anomalies , redundancy ,Inset anomaliy ,delete anomaly and update anomaly.

Question No: 19   (Marks: 2)

In which situation do a recursive relationship exist?

When an Entity Type is linked to itself , then is called recursive relationship.
Figure-5 above shows the recursive relationship which tells that in the faculty of a certain institute we can have one faculty member from among the same faculty as the head of the faculty. Now the role mentioned on the relationship tell that many Faculty instance are headed by one of the entity instance from the same faculty relation.

Question No: 20   (Marks: 3)

What is DML (Data Manipulation Language)?

This is the third component of relational data model. We have studied structure, which is the relation, integrity constraints both referential and entity integrity constraint. Data manipulation languages are used to carry out different operations like insertion, deletion or creation of database. Following are the two types of languages:
Relational Calculus is a nonprocedural formal relational data manipulation language in which the user simply specifies what data should be retrieved,

Question No: 21   (Marks: 3)

What are the three important objectives for using data types while specifying attributes?

4 major objectives for using data types when specifying attributes in a database are given as under:

- Minimized usage of storage space
- Represent all possible values
- Improve data integrity
- Support all data manipulation

Question No: 22   (Marks: 5)

Briefly explain super key in relation with primary key.

Super key

A super key is a set of one or more attributes which taken collectively, allow us to identify uniquely an entity instance in the entity set. This definition is same as of a key, it means that the super key is the most general type of key. For example, consider the entity type STUDENT with attributes registration number, name, father name, address, phone, class, admission date. Now which attribute can we use that can uniquely identify any instance of STUDENT entity type. Of course, none of the name, father name, address, phone number, class, admission date can be used for this purpose. Why? Because if we consider name as super key, and situation arises that we need to contact the parents of a particular student. Now if we say to our registration department that give us the phone number of the student whose name is Ilyas Hussain, the registration department conducts a search and comes up with 10 different Ilyas Hussain, could be anyone. So the value of the name attribute cannot be used to pick a particular instance. Same happens with other attributes. However, if we use the registration number, then it is 100% sure that with a particular value of registration number we will always find exactly a single unique entity instance. Once you identified the instance, you have all its attributes available, name, father name, everything. The entity type STUDENT and its attributes are shown graphically in the figure 1 below, with its super key "regNo" underlined.

Question No: 23   (Marks: 5)

When is a functional dependency F said to be minimal?

Functional Dependencies and Keys:
We can determine the keys of a relation after seeing its functional dependencies. The determinant of functional dependency that determines all attributes of that table is the super key. Super key is an attribute or a set of attributes that identifies an entity uniquely. In a table, a super key is any column or set of columns whose values can be used to distinguish one row from another. A minimal super key is the candidate key , so if a determinant of functional dependency determines all attributes of that relation then it is definitely a super key and if there is no other functional dependency whereas a subset of this determinant is a super key then it is a candidate key. So the functional dependencies help to identify keys. We have an example as under:

Question No: 18 (Marks: 2)

What major problem can occur if we do not normalize a relation into the first normal form?

Normalization is basically; a process of efficiently organizing data in a database. There are two goals of the normalization process: eliminate redundant data (for example, storing the same data in more than one table) and ensure data dependencies make sense (only storing related data in a table). Both of these are worthy goals as they reduce the amount of space a database consumes and ensure that data is logically stored.

Question No: 17   (Marks: 2)

What do you know about Insertion anomaly?

Insertion anomaly indicates that we cannot insert a fact about one entity until we have an additional fact about another entity.

Delete anomaly indicates that we cannot delete a fact about one entity until we have an additional fact about another entity.

Update anomaly indicates that we cannot update a fact about one entity until we have an additional fact about another entity.

Question No: 18   (Marks: 2)

Define domain of an attribute.

In computing, the attribute domain is the set of values allowed in an attribute. For the relational model it is a requirement that each part of a tuple be atomic. The consequence is that each value in the tuple must be of some basic type, like a string or an integer. For the elementary type to be atomic it cannot be broken into more pieces.

Question No: 19   (Marks: 2)

Data Flow

Label the following diagram

1...Data Store
2...Entity

Question No: 20   (Marks: 3)

Why do the relational data model considered as simple?

The relational model for database management is a database model based on first-order predicate logic The relational model provide a declarative method for specifying data and queries: we directly state what information the database contains and what information we want from it, and let the database management system software take care of describing data structures for storing the data and retrieval procedures for getting queries answered

Question No: 21   (Marks: 3)

What is the intersection operation in relational algebra?

The intersection operation also has the requirement that both the relations should be union compatible, which means they are of same degree and same domains. It is represented by. If R and S are two relations and we take intersection of these two relations then the resulting relation would be the set of tuples, which are in both R and S. Just like union intersection is also commutative.

R ∩ S = S ∩ R

INTERSECTION Example

R

A	1
B	2
D	3
F	4
E	5

R |NTERSECTION S

A	1
D	3

S

A	1
C	2
D	3
E	4

Question No: 22   (Marks: 5)
The following diagram describes a part of an ER diagram.
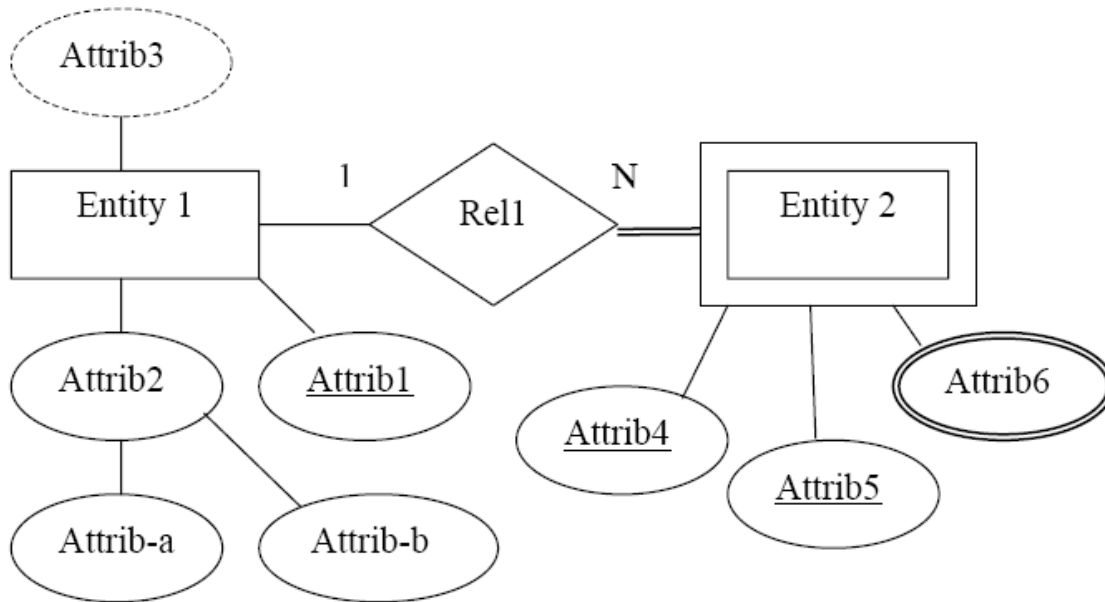
Considering the above diagram, which of the given statements are True and which are False.

i-Entity2 is a weak entity. **True**

ii-Cardinality ratio for Entity1:Entity2 in Rel1 is 1:N. **True**

iii-Attrib6 represents an attribute which is having composite nature. **False**

iv-Attrib3 is a kind of a derived attributes. **True**

v-Entity2 is participating totally in the Rel1 relationship**. True**

Question No: 23   (Marks: 5)

How to implement one-to-many relationship while designing tables?

If the primary key in a `parent table matches multiple foreign keys in a child table`, then the relationship is one-to-many. This relationship is common in database applications. For example, an application for a sports league might access a team table and a player table. Each team has multiple players, and each player belongs to a single team. Every row in the child table (player) has a foreign key identifying the player's team. This foreign key matches the team table's primary key.

When designing such entity beans, you must decide whether both tables are represented by entity beans, or just one.

Question No: 17 (Marks: 1)

In which condition a relation in first normal form, automatically turns into the second normal form?

A relation is in second normal form (2NF) if and only if it is in first normal form and all the nonkey attributes are fully functionally dependent on the key(not on composite key). Clearly, if a relation is in 1NF and the key consists of a `single attribute`, the relation is automatically in 2NF. The only time we have to be concerned about 2NF is when the key is composite.

Question No: 18 (Marks: 1)

State one limitation of Data flow diagrams:

Limitation of DFDs
- They do not provide us a way of expressing decision points.

DFDs are focused on flow of information only.

Question No: 20 (Marks: 3)

What do you know about the conceptual view of database?

Conceptual or Logical View:

This is the level of database architecture which contains the definition of all the data to be stored in the database and also contains rules and information about that structure and type of that data.

The conceptual view is the complete description of the data stored in the database. It stores the complete data of the organization that is why it is also known as the `community view of the database`. The conceptual view shows all the entities existing in the organization, attribute or characteristics associated with those entities and the relationships which exist among the entities of the organization.

The Three-Level Architecture

	User 1	User 2	User n
External Level	View 1	View 2	------- View n
Conceptual Level		Conceptual Schema	
Internal Level		Internal Schema	
Physical Data Organization		Database	
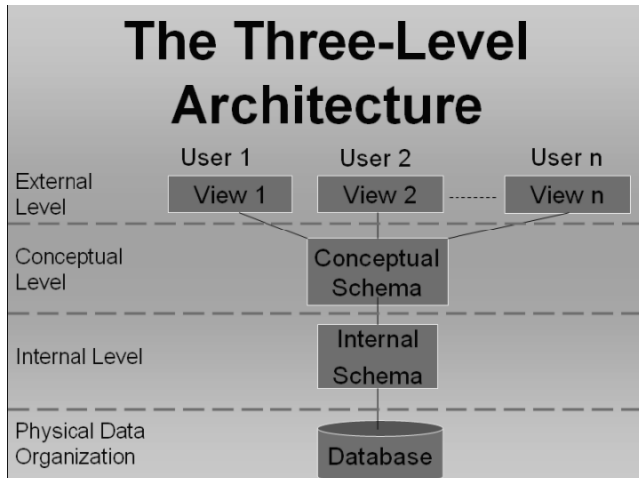
Question No: 21 (Marks: 5)

Explain the purpose of defining processing rights for a database.

Question No: 22 (Marks: 10)

Explain and differentiate between Context Level and Level 0 dataflow diagrams.

o Context Diagram:

This is the level of DFD which provides the least amount of details about the working of the system. Context DFDs have the following properties:

They always consist of single process and describe the single system. The only process displayed in the CDFDs is the process/system being analyzed. Name of the CDFDs is generally a Noun Phrase.

No System details are shown in the Contexts DFDs just context is shown. Input and output from and to the process are shown and interactions are shown only with the external entities.

In the context level DFDs no data stores are created. Ant dataflow from external entities are only directed toward the purported system and vice versa, no communication is show between external entities themselves.

Level 0 Data Flow Diagrams:

The level 0 Diagram in the DFD is used to describe the working of the whole system. Once a context DFD has been created the level zero diagram or level 'not' diagram is created. The level zero diagram contains all the apparent details of the system. It shows the interaction between a numbers of processes and may include a large number of external entities. At this level it is the duty of the designer to keep a balance in describing the system using the level 0 diagram. Balance means that he should give proper depth to the level 0 diagram processes. Because placing too much details and showing all of the miniature processes in the level 0 diagrams makes it too much complex. On the other hand it is also not recommended to just ignore even larger processes of the system, because in such a case although the level 0 DFD will become simple but now we will have to create large number of detail DFDs. So a balance in describing the system should be kept so that the depth of the Level 0 DFD is manageable.

Question No: 23   (Marks: 5)

Q- Define Relationship.

The relationship is a link or association between one or more entity types and we discussed it in E-R data model. However the degree of a relation is the number of columns in that relation.

Q- Define primary key and give one example.

Primary Key :   The candidate key that is selected to identify tuples uniquely within the relation.

In figure 2, we can identify two different attributes that can individually identify the entity instances of STUDENT and they are regNo and nIdNumber, both are minimal super keys so both are candidate keys. Now in this situation we have got two candidate keys. The one that we choose will be declared as primary key, other will be the alternate key. Any of the candidate keys can be selected as primary key,

Fig. 2: An entity type, its defining attributes and two candidate keys

Q- Define the first normal form.

First Normal Form:

A relation is in first normal form if and only if every attribute is single valued for each tuple. This means that each attribute in each row , or each cell of the table, contains only one value. No repeating fields or groups are allowed. An alternative way of describing first normal form is to say that the domains of attributes of a relation are atomic, that is they consist of single units that cannot be broken down further. There is no multivalued (repeating group) in the relation multiple values create problems in performing operations like select or join. For Example there is a relation of Student

STD(stIdstName,stAdr,prName,bkId)

stId	stName	stAdr	prName	bkId
S1020	Sohail Dar	I-8 Islamabad	MCS	B00129
S1038	Shoaib Ali	G-6 Islamabad	BCS	B00327
S1015	Tahira Ejaz	L Rukh Wah	MCS	B08945, B06352
S1018	Arif Zia	E-8, Islamabad.	BIT	B08474

Now in this table there is no unique value for every tuple, like for S1015 there are two values for bookId. So to bring it in the first normal form.

stId	stName	stAdr	prName	bkId
S1020	Sohail Dar	I-8 Islamabad	MCS	B00129
S1038	Shoaib Ali	G-6 Islamabad	BCS	B00327
S1015	Tahira Ejaz	L Rukh Wah	MCS	B08945
S1015	Tahira Ejaz	L Rukh Wah	MCS	B06352
S1018	Arif Zia	E-8, Islamabad.	BIT	B08474

Question No: 17   (Marks: 2)

State the two conditions which are imposed on candidate key?

- **identifies the entity instances uniquely, in case of super key,**
- **No proper subset of candidate key is a key.**

Question No: 18   (Marks: 2)

What is the importance of determining minimum cardinality in a relationship while designing database?

It is important to determine the minimum cardinality because it defines the way a database system will be implemented.

It shows us that how many instance of an entity can be placed in another relation at least.

Question No: 19   (Marks: 2)

What do you know about Insertion anomaly?

It is wrong state of database. It occurs when a new record is inserted in the relation. In this case the user cannot insert a fact about an entity until he has an additional fact about another entity.

Question No: 20   (Marks: 3)

Why do the relational data model considered as simple?

Because there is one structure and that is a relation (table).

Back to TOP

Plus this single structure is very easy to understand. Due to which a user of a moderate knowledge can understand it easily.

It has strong math foundation which gives it extra strength.

Question No: 21   (Marks: 3)

Name the three different kinds of anomalies which can be eliminated through normalization?

1.   Update anomaly .

2.   Delete anomaly

3.   Insert anomaly

4.   Redundancy Anomaly

Question No: 23   (Marks: 5)

Consider the relation R with four attributes A,B,C and D and the functional dependencies

(A,B) -> (C,D) and

C -> D .

a)The above relation is a normalized relation upto which normal form?

2NF

b)Write the PK of relation R

Solved MCSQ from Past Papers and Quizzes

Question No: 1   (Marks: 1)   - Please choose one
Consider the following statements.
A. Conceptual schema which is the result of conceptual design is a logical description of all data elements and their relationships.
B. Internal level of the database architecture consists of the physical view of the database.
C. External level of the database architecture provides the user view of the database.
With respect to the ANSI/SPARC three level database architecture, which of the above is/are correct?

► Only A.

► Only C.
► **Only A and B.**
► Only B and C.

Question No: 2   (Marks: 1)   - Please choose one
The ER- data model is an example of:
► Physical database
► Logical database
► Relational database
► **Conceptual database**

Question No: 4   (Marks: 1)   - Please choose one
Which of the following constraints enforces referential integrity?
► **FOREIGN KEY**
► CHECK
► PRIMARY KEY
► UNIQUE

Question No: 5   (Marks: 1)   - Please choose one
Given are the relations of student and Instructor
Consider the following table obtained using Student and Instructor relations.

Which relational algebra operation could have been applied on the pair of relations Student and Instructor to obtain the above data?

► **Instructor – Student**
► Student ∩ Instructor
► Instructor ÷ Student
► Student – Instructor

Question No: 6   (Marks: 1)   - Please choose one
Consider the relation Interview(CandidateNo, InterviewDate, InterviewTime, StaffNo, RoomNo)
and the following functional dependencies.
FD1 : CandidateNo, InterviewDate -> InterviewTime, StaffNo, RoomNo
FD2 : RoomNo, InterviewDate, InterviewTime -> StaffNo, CandidateNo
FD3 : StaffNo, InterviewDate -> RoomNo
Which of the following is correct?

► **The relation Interview is in 3NF**
► The relation Interview is in BCNF.
► The FD3 violates 3NF.
► The FD2 violates 2NF.

Question No: 7   (Marks: 1)   - Please choose one

Which of the following is INCORRECT statement concerning the database design process?

► During requirements collection and analysis phase, one can gather the data requirements of database users.

► By referring to a high level data model, it is possible to understand the data requirements of the users, entity types, relationships and constraints.

► Transformation of the high level data model into the implementation data model is called logical design or data model mapping.

► **During the logical design phase of internal storage structures, access paths and file organization for the database files are specified.**

Question No: 8   (Marks: 1)   - Please choose one
Consider the following diagram depicting a kind of a relationship type where X and Z are entities and Y is a relationship type:

Select the correct statement among the following on the above diagram.

► The relationship type Y is of cardinality ratio 1 : N.
► The diagram depicts existence dependencies.
► **The participation of X in the Y relationship type is total.**
► The participation of Z in the Y relationship type is partial.

Question No: 9   (Marks: 1)   - Please choose one
Identify the correct statement.
► Entity integrity constraints specify that primary key values can be composite.

► **Entity integrity constraints are specified on individual relations**.

► Entity integrity constraints are specified between weak entities.

► When entity integrity rules are enforced, a tuple in one relation that refers to another relation must refer to an existing tuple.

Question No: 10   (Marks: 1)   - Please choose one
Identify the correct statement.
► Referential integrity constraints check whether the primary key values are unique.
► Referential integrity constraints check whether an attribute value lies in the given range.

► Referential integrity constraints are specified between entities having recursive relationships.

► **When Referential integrity rules are enforced, a tuple in one relation that refers to another relation must refer to an existing tuple.**

Question No: 11   (Marks: 1)   - Please choose one
Identify the correct way to implement one-to-one relationship in tables?
► by splitting the data into two tables with primary key and foreign key relationships.

► **as a single table and rarely as two tables with primary and foreign key relationships.**

► using a junction table with the keys from both the tables forming the composite primary key of the junction table.

► by creating two separate tables

Question No: 12   (Marks: 1)   - Please choose one
A collection of related data is

► Logical model
► **Database**
► Data
► Relational model

Question No: 13   (Marks: 1)   - Please choose one
A collection of concepts that can be used to describe the structure of a database

► Database

► DBMS
► **Data model**
► Data

Question No: 14   (Marks: 1)   - Please choose one
A superkey that does not contain a subset of attributes that is itself a superkey is called a ____.
► **candidate key**
► primary key
► superkey
► secondary key

Question No: 15   (Marks: 1)   - Please choose one
As part of database naming conventions, attribute names should use suffixes such as ID, NUMBER or CODE for the _____.
► **primary key**
► foreign key
► index

► determinant

Question No: 16   (Marks: 1)   - Please choose one
Which of the following concepts is applicable with respect to 2NF?
► **Full functional dependency**
► Any kind of dependency
► Transitive dependency
► Non-transitive dependency

Question No: 1   (Marks: 1)   - Please choose one
A database system allows the following EXCEPT

► management and control of data towards an efficient working of an organisation.

► more critical functions in organisations to be computerised and the need to keep a large volume of data available in an up to the minute current state increased.

► any user to access all its data.

► integration of data across multiple applications into a single application.

Question No: 2   (Marks: 1)   - Please choose one
User rights information is stored in
► Physical database

► Catalog

► Logical database

► Buffer

Question No: 3   (Marks: 1)   - Please choose one
The ER- data model is an example of:
► Physical database

► Logical database

► Relational database
► Conceptual database

Question No: 4   (Marks: 1)   - Please choose one
Which of the following is true about NOT NULL constraint?
► enforce domain integrity

► limit the values that can be placed in a column.

► prevents any actions that would destroy links between tables with the corresponding data values

► enforces the uniqueness of the values in a set of columns

Question No: 5   (Marks: 1)   - Please choose one

Consider the relation Interview(CandidateNo, InterviewDate, InterviewTime, StaffNo, RoomNo)
and the following functional dependencies.
FD1 : CandidateNo, InterviewDate -> InterviewTime, StaffNo, RoomNo FD2 : RoomNo, InterviewDate, InterviewTime -> StaffNo, CandidateNo FD3 : StaffNo, InterviewDate -> RoomNo
Which of the following is correct?

► The relation Interview is in BCNF.
► The FD3 violates 3NF.
► The FD3 violates BCNF.
► The FD2 violates 2NF.

Question No: 6   (Marks: 1)   - Please choose one

Consider the following diagram depicting a kind of a relationship type where X and Z are entities and
Y is a relationship type:

Select the correct statement among the following on the above diagram.

► The relationship type Y is of cardinality ratio 1 : N.
► The diagram depicts existence dependencies.
► The participation of X in the Y relationship type is total.

► The participation of Z in the Y relationship type is partial.

Question No: 7   (Marks: 1)   - Please choose one
Select the correct statement among the following.
► Role names are not technically necessary in relationship types when all the participating entity types are distinct.

► When different entity types participate only once in a single relationship type it is called a recursive relationship.

► Cardinality ratios for binary relationship are displayed on Entity Relationship Diagrams by using a diamond shape notation.

► Partial participation which is also called existence dependency is displayed as a double line connecting the participating entity type to the relationship.

Question No: 8   (Marks: 1)   - Please choose one
Which of the following is true about relational schema?
► The sequence of columns is significant
► The sequence of rows is significant.
► Contains only derived attributes.
► Values are atomic.

Question No: 9   (Marks: 1)   - Please choose one
Consider the given relations *Student* and *Instructor* as given below. Please note that Fname and Lname also denote the First Name and Last Name respectively.

Which of the following statements is correct with respect to the two relations given above?

First Name	Last Name
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumuthini	Costa
Geetha	Zoysa
Prasad	Fernando

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romith	Dias

these
► The two relations are not union-compatible since their attribute names differ.
► The set operations such as CARTESIAN PRODUCT and DIVISION can be applied on these two relations.

► To find out those students who work as instructors, it is necessary to perform the operation
Student ∩ Instructor.

► To find out the students who are not instructors, it is necessary to perform the operation
Student ÷ Instructor.

Question No: 10   (Marks: 1)   - Please choose one
Consider the given relations *Student* and *Instructor* as given below. Please note that Fname and Lname also denote the First Name and Last Name respectively.

Which of the following statements is correct with

Student	
First Name	**Last Name**
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumari	Costa
Geetha	Zoysa
Prasad	Fernando

Instructor	
Fname	**Lname**
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romesh	Dias

respect to the two relations given above?

► The two relations are not union-compatible since their attribute names differ.
► The two relations are union-compatible since they have the same type of tuples.
► The set operations such as CARTESIAN PRODUCT and DIVISION can be applied on these two relations.
► To find out the students who are not instructors, it is necessary to perform the operation
Student ÷ Instructor.

Question No: 11   (Marks: 1)   - Please choose one _____ Consider the following relation R and its sample data. (Consider that these are the only tuples for the given relation)

EmpNo	DeptNo	ProjNo
1001	01	12
1001	01	13
1002	01	12
1003	01	14

Which of the following statements is NOT correct?

► The functional dependency ProjNo -> DeptNo holds over R.
► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.
► The functional dependency DeptNo -> ProjNo holds over R.
► The functional dependency EmpNo -> DeptNo holds over R.

Question No: 12   (Marks: 1)   - Please choose one _____

A collection of related data is

► Logical model
► Database
► Data
► Relational model

Question No: 13   (Marks: 1)   - Please choose one
A weak entity type

► must have total participation in an identifying relationship
► does not have a key attribute(s)
► both (a) and (b)
► none of the above

Question No: 14   (Marks: 1)   - Please choose one
A description on a particular collection of data using the given data model

► Database
► Schema
► None of the above.
► Relation

Question No: 15   (Marks: 1)   - Please choose one
If K is a foreign key in relation R1, then
► every tuple of R1 has a distinct value for K.
► K cannot have a null value for tuples in R1.
► K is a key for some other relation.
► K is a primary key for R1.

Question No: 16   (Marks: 1)   - Please choose one
Consider the following statements.

A. An entity integrity constraint states that no primary key value
can be null.
 B. A referential integrity constraint is specified between two
relations.
C. A foreign key cannot be used to refer to its own relation.

Identify which of the above statements is/are correct.

► Only A

► Only B

► B and C

► A and B

Question No: 1   (Marks: 1)   - Please choose one
User rights information is stored in
   ► Physical database

   ► Catalog

   ► Logical database

   ► Buffer

Question No: 2   (Marks: 1)   - Please choose one
Making a change to the conceptual schema of a database but not affecting the existing external schemas is an example of

   ► Physical data independence.
   ► Concurrency control.
   ► **Logical data independence.**
   ► Functional dependency

Question No: 3   (Marks: 1)   - Please choose one
Which of the following is NOT a feature of Context DFD?
   ► one process (which represents the entire system)

   ► all sources/sinks (external entities)

   ► data flows linking the process to the sources and sinks (external entities)

   ► **sub-processes (which explain and decomposed the major process into small processes)**

Question No: 4   (Marks: 1)   - Please choose one
A relation (from the relational database model) consists of a set of tuples, which implies that
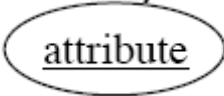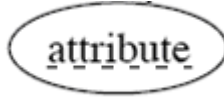   ► **all tuples in a relation must be distinct.**
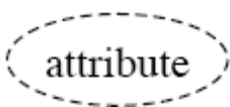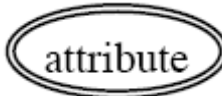
   ► relational model supports multi-valued attributes whose values can be represented in sets.

   ► for any two tuples, the values associated with all of their attributes may be the same.

   ► all tuples in a particular relation may have different attributes.

Question No: 5   (Marks: 1)   - Please choose one
Choose the symbol that corresponds to a discriminator attributes.

► (attribute)

► (attribute)

► (attribute)

► (attribute)

Question No: 6   (Marks: 1)   - Please choose one
Identify the constraint that limits the values that can be placed in a column.

► **NOT NULL**

► CHECK
► FOREIGN KEY

► UNIQUE

Question No: 7   (Marks: 1)   - Please choose one
Given are the relations of student and Instructor

Student

First Name	Last Name
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumari	Costa
Geetha	Zoysa
Prasad	Fernando

Instructor

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romesh	Dias

Consider the following table obtained using Student and Instructor relations.

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Kasun	Peiris

Which relational algebra operation could have been applied on the pair of relations Student and Instructor to obtain the above data?

> ► **Instructor – Student**
> ► Student ∩ Instructor
> ► Instructor ÷ Student
> ► Student – Instructor

Question No: 8   (Marks: 1)   - Please choose one
Identify the correct statement with respect to normalization.

> ► Normalization is a formal technique that can be used only at the starting phase of the database design.
> ► **Normalization can be used as a top-down standalone database design technique.**
> ► The process of normalization through decomposition must achieve the lossless join property at any cost whereas the dependency reservation property is sometimes sacrificed.
>
> ► The process of normalization through decomposition must achieve the dependency reservation property at any cost whereas the lossless join property is sometimes sacrificed.

Question No: 9   (Marks: 1)   - Please choose one
Consider the relation Interview(CandidateNo, InterviewDate, InterviewTime, StaffNo, RoomNo)
and the following functional dependencies.
FD1 : CandidateNo, InterviewDate -> InterviewTime, StaffNo, RoomNo
FD2 : RoomNo, InterviewDate, InterviewTime -> StaffNo, CandidateNo
FD3 : StaffNo, InterviewDate -> RoomNo
Which of the following is correct?

> ► **The relation Interview is in 3NF**
> ► The relation Interview is in BCNF.
> ► The FD3 violates 3NF.
> ► The FD2 violates 2NF.

Question No: 10   (Marks: 1)   - Please choose one
Identify the INCORRECT statement among the given.
> ► An entity may be an object with a physical existence like a car, a house or an Employee.
> ► **One cannot consider something which has conceptual existence like a course in a degree program as an entity.**
> ► Age can be considered as a single value attribute of a person.

► An entity type describes the schema or intension for a set of entities which share the same structure.

Question No: 11   (Marks: 1)   - Please choose one
Structural constraints of a relationship type refer to
  ► identifying the owner entity type relevant to a given entity type
  ► whether the existence of an entity depends on it being related to another entity via the relationship type.
  ► the role that a participating entity from the entity type plays in each relationship instance.
  ► the constraints applicable in granting access to tables, columns and views in a database schema.

Question No: 12   (Marks: 1)   - Please choose one
A collection of concepts that can be used to describe the structure of a database

  ► Database
  ► DBMS
  ► Data model
  ► Data

Question No: 13   (Marks: 1)   - Please choose one
An entity can be logically connected to another by defining a ____.
  ► hyperlink
  ► common attribute
  ► primary key
  ► superkey

Question No: 14   (Marks: 1)   - Please choose one
The ____ constraint specifies whether each entity supertype occurrence must also be a member of at least one subtype.
  ► specialization
  ► uniqueness
  ► inheritance
  ► completeness

Question No: 15   (Marks: 1)   - Please choose one
Database management systems, operating systems, applications and utilities are all examples of ____.
  ► hardware
  ► software
  ► computer infrastructure
  ► input and output

Question No: 16   (Marks: 1)   - Please choose one
Which of the following concepts is applicable with respect to 2NF?

► Full functional dependency
► Any kind of dependency
► Transitive dependency
► Non-transitive dependency

Question No: 1   (Marks: 1)   - Please choose one
Which of the following is NOT a feature of Context DFD?
   ► one process (which represents the entire system)

   ► all sources/sinks (external entities)

   ► data flows linking the process to the sources and sinks (external entities)

   ► sub-processes (which explain and decomposed the major process into small processes)

Question No: 2   (Marks: 1)   - Please choose one
Which of the following is true for the relational model?
▶ Degree of a relation is the number of rows in a relation.

▶ Null value is a blank or zero value given to an attribute value when its value is inapplicable or its value is unknown.

▶ Complex key is a key consisting of more than one attribute.

▶ Constraint is a rule that restricts the values in a database.

Question No: 3   (Marks: 1)   - Please choose one
Which one of the following four E-R diagrams is the typical result you obtain when you initially start with an E-R diagram containing just two entities, A and C, in a Many-to-Many relationship, and then introduce an associative entity (B).

Question No: 4　(Marks: 1)　- Please choose one

Which of the following most certainly implies the need for an entire table to implement?

► A binary relationship
► A ternary relationship
► A recursive relationship
► An identifying relationship

Question No: 5　(Marks: 1)　- Please choose one

Which of the following constraints enforces entity integrity?
► PRIMARY KEY
► FOREIGN KEY
► CHECK
► NOT NULL

Question No: 6　(Marks: 1)　- Please choose one

Which of the following is not true about relational tables?
► Column values are of the same kind.

► Each row is unique.

► Each column must have a unique name.

► The sequence of rows is significant.

Question No: 7　(Marks: 1)　- Please choose one

In a conceptual model for a university, what type of relationship exists between Grade and Student entities?
► 1:1
► 1:M
► M:M
► Ternary

Question No: 8　(Marks: 1)　- Please choose one

Controlling redundancy in a database management system DOES NOT help to
► avoid duplication

► avoid unnecessary wastage of storage space

► avoid unauthorised access to data

► avoid inconsistency among data

Question No: 9　(Marks: 1)　- Please choose one

Which of the following is INCORRECT with respect to file systems?

> ► At the physical level, pointer or hashed address scheme may be employed to provide a certain degree of data independence at the user level.
> ► A logical record is concerned with efficient storage of information in the secondary storage devices.
> ► Some physical organisations use pointers to record blocks to locate records on disk.
> ► The efficiency of a file system depends on how efficiently operations such as retrieve, insert, update, delete may be performed on the information stored in the file.

Question No: 10   (Marks: 1)   - Please choose one
Which of the following functions are NOT performed by a database administrator?

> ► Planning, designing and implementing database systems

> ► Establishing standards and procedures for database systems

> ► Communicating with database users

> ► Allocation of storage locations and data structures

Question No: 11   (Marks: 1)   - Please choose one
Select the correct statement about the ANSI/SPARC architecture.
> ► The conceptual level is a level of indication between the internal level and the external level.
> ► The internal level in a database system will definitely be relational.
> ► Any given database has many conceptual schemas and one physical schema, but it has only one external schemas.
> ► The external level is not concerned with individual user perceptions, while the conceptual level is concerned with a community user perception.

Question No: 12   (Marks: 1)   - Please choose one
Which of the following is a correct way to implement one-to-many relationship while designing tables?
> ► by splitting the data into two tables with primary key and foreign key relationships.
> ► using a junction table with the keys from both the tables forming the composite primary key of the junction table.
> ► by splitting each table into three
> ► as a single table and rarely as two tables with primary and foreign key relationships.

Question No: 13   (Marks: 1)   - Please choose one
Which of the following is not a benefit of normalization?

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- ► Minimize insertion anomolies
- ► Minimize deletion anomolies
- ► Minimize updation anomolies
- ► Maximize redundancy

Question No: 14   (Marks: 1)   - Please choose one

Consider the following relation R and its sample data. (Consider that these are the only tuples for the given relation)

EmpNo	DeptNo	ProjNo
1001	01	12
1001	01	13
1002	01	12
1003	01	14

Which of the following statements is NOT correct?

- ► The functional dependency (EmpNo, DeptNo) -> ProjNo holds over R.
- ► The functional dependency EmpNo -> DeptNo holds over R.
- ► The functional dependency ProjNo -> DeptNo holds over R.

- ► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.

Question No: 15   (Marks: 1)   - Please choose one

The Entity Relation Model models

- ► Entities, Relationships and Processes
- ► Entities and Relationships
- ► Relationships
- ► Entities

Question No: 16   (Marks: 1)   - Please choose one

As part of database naming conventions, attribute names should use suffixes such as ID, NUMBER or CODE for the _____.

- ► primary key
- ► foreign key
- ► index
- ► determinant

Question No: 1 (Marks: 1) - Please choose one

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► Minimize insertion anomolies
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Question No: 2 (Marks: 1) - Please choose one
Which of the following is NOT a component of a DFD?
► Dataflow
► Datastore
► External entities
► Relationship between external entities

Question No: 3 (Marks: 1) - Please choose one
Which of the following is correct regarding Dataflow diagram?
► Single DFD is required to represent a system
► The dataflow must be bidirectional
► Created at increasing levels of detail
► Used to represent the relationships among the external entities

Question No: 4 (Marks: 1) - Please choose one
Which of the following is CORRECT about database management system's languages?
► Data definition languages are used to specify the conceptual schema only.
► Data manipulation languages are used to create the databases.
► Data manipulation languages are used for retrieval, insertion, deletion and modification of data.
► Data definition langauges are only used to update data in the DBMS.

Question No: 5 (Marks: 1) - Please choose one
Controlling redundancy in a database management system DOES NOT help to
► avoid duplication
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Question No: 6 (Marks: 1) - Please choose one
Which of the following concepts is applicable with respect to 3NF?
► Full functional dependency
► Any kind of dependency
► Transitive dependency
► Partial functional dependency

Question No: 7 (Marks: 1) - Please choose one
Consider two sets A and B. A contains 3 elements and B contains 4. How many elements do their cartesian product contains?
► 12
► 9
► 16
► 7

Question No: 8 (Marks: 1) - Please choose one
Consider two sets A and B. A contains 2 elements and B contains 3. How many elements do their cartesian product contains?
► 6
► 9

► 4
► 5

Question No: 9 (Marks: 1) - Please choose one
In a conceptual database model, which of the following most likely represents a valid identifier for a class grades?
► StudentID
► StudentID, CourseID
► StudentID, CourseID, InstructorID
► StudentID, CourseSectionID

Question No: 10 (Marks: 1) - Please choose one
Identify the correct statement with respect to normalization.
► Normalization is a formal technique that can be used only at the starting phase of the database
design.
► Normalization can be used as a top-down standalone database design technique.
► The process of normalization through decomposition must achieve the lossless join property at any cost whereas the dependency reservation property is sometimes sacrificed.
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► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.

Question No: 12 (Marks: 1) - Please choose one
Which of the following is not true about relational tables?
► Column values are of the same kind.
► Each row is unique.
► Each column must have a unique name.
► The sequence of rows is significant.

Question No: 13 (Marks: 1) - Please choose one
Identify the operation which is NOT one of the parts of the five basic set operations in relational algebra?

► Join
► Union
► Cartesian Product
► Set Difference

Question No: 14 (Marks: 1) - Please choose one

Consider the following statements.

A. An entity integrity constraint states that no primary key value can be null.
B. A referential integrity constraint is specified between two relations.
C. A foreign key cannot be used to refer to its own relation.
Identify which of the above statements is/are correct.
► Only A
► Only B
► Only B and C
► Only A and B

Question No: 15 (Marks: 1) - Please choose one

If K is a foreign key in relation R1, then
► every tuple of R1 has a distinct value for K.
► K cannot have a null value for tuples in R1.
► K is a key for some other relation.
► K is a primary key for R1.

Question No: 16 (Marks: 1) - Please choose one

Making a change to the conceptual schema of a database but not affecting the existing external
schemas is an example of
► Physical data independence.
► Concurrency control.
► Logical data independence.
► Functional dependency

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Question No: 1   (Marks: 1)   - Please choose one

User rights information is stored in

   ► Physical database

   ► Catalog

   ► Logical database

   ► Buffer

Question No: 2   (Marks: 1)   - Please choose one

Making a change to the conceptual schema of a database but not affecting the existing external schemas is an example of

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   ► Functional dependency

Question No: 3   (Marks: 1)   - Please choose one

Which of the following is NOT a feature of Context DFD?

   ► one process (which represents the entire system)

   ► all sources/sinks (external entities)

   ► data flows linking the process to the sources and sinks (external entities)

► sub-processes (which explain and decomposed the major process into small processes)

Question No: 4   (Marks: 1)   - Please choose one
A relation (from the relational database model) consists of a set of tuples, which implies that
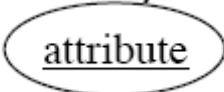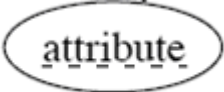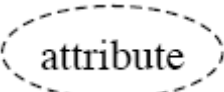�qqqqqq►qall tuples in a relation must be distinct.

qqqqqq►qrelational model supports multi-valued attributes whose values can be represented in sets.

qqqqqq►qfor any two tuples, the values associated with all of their attributes may be the same.

qqqqqq►qall tuples in a particular relation may have different attributes.

Question No: 5   (Marks: 1)   - Please choose one
Choose the symbol that corresponds to a discriminator attributes.

► attribute

► attribute

► attribute

► attribute

Question No: 6   (Marks: 1)   - Please choose one
Identify the constraint that limits the values that can be placed in a column.

► NOT NULL

► CHECK

► FOREIGN KEY

► UNIQUE

Question No: 7   (Marks: 1)   - Please choose one
Given are the relations of student and Instructor

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Student

First Name	Last Name
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumari	Costa
Geetha	Zoysa
Prasad	Fernando

Instructor

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romesh	Dias

Consider the following table obtained using Student and Instructor relations.

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Kasun	Peiris

Which relational algebra operation could have been applied on the pair of relations Student and Instructor to obtain the above data?

► Instructor – Student
► Student ∩ Instructor
► Instructor ÷ Student
► Student – Instructor

Question No: 8   (Marks: 1)   - Please choose one
Identify the correct statement with respect to normalization.

► Normalization is a formal technique that can be used only at the starting phase of the database design.
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Question No: 9   (Marks: 1)   - Please choose one
Consider the relation Interview(CandidateNo, InterviewDate, InterviewTime, StaffNo, RoomNo)
and the following functional dependencies.

FD1 : CandidateNo, InterviewDate -> InterviewTime, StaffNo, RoomNo
FD2 : RoomNo, InterviewDate, InterviewTime -> StaffNo, CandidateNo
FD3 : StaffNo, InterviewDate -> RoomNo
Which of the following is correct?

- ► The relation Interview is in 3NF
- ► The relation Interview is in BCNF.
- ► The FD3 violates 3NF.
- ► The FD2 violates 2NF.

Question No: 10   (Marks: 1)   - Please choose one
Identify the INCORRECT statement among the given.
- ► An entity may be an object with a physical existence like a car, a house or an Employee.
- ► One cannot consider something which has conceptual existence like a course in a degree program as an entity.

- ► Age can be considered as a single value attribute of a person.
- ► An entity type describes the schema or intension for a set of entities which share the same
structure.

Question No: 11   (Marks: 1)   - Please choose one
Structural constraints of a relationship type refer to

- ► identifying the owner entity type relevant to a given entity type
- ► whether the existence of an entity depends on it being related to another entity via the relationship type.

- ► the role that a participating entity from the entity type plays in each relationship instance.
- ► the constraints applicable in granting access to tables, columns and views in a database
schema.

Question No: 12   (Marks: 1)   - Please choose one
A collection of concepts that can be used to describe the structure of a database

- ► Database
- ► DBMS
- ► Data model
- ► Data

Question No: 13   (Marks: 1)   - Please choose one
An entity can be logically connected to another by defining a ____.

► hyperlink
► common attribute
► primary key
► superkey

Question No: 14   (Marks: 1)   - Please choose one
The ____ constraint specifies whether each entity supertype occurrence must also be a member of at least one subtype.
► specialization
► uniqueness
► inheritance
► completeness

Question No: 15   (Marks: 1)   - Please choose one
Database management systems, operating systems, applications and utilities are all examples of ____.
► hardware
► software
► computer infrastructure
► input and output

Question No: 16   (Marks: 1)   - Please choose one
Which of the following concepts is applicable with respect to 2NF?
► Full functional dependency
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► Non-transitive dependency

Question No: 1 (Marks: 1) - Please choose one
Which of the following is NOT a feature of Context DFD?
► one process (which represents the entire system)
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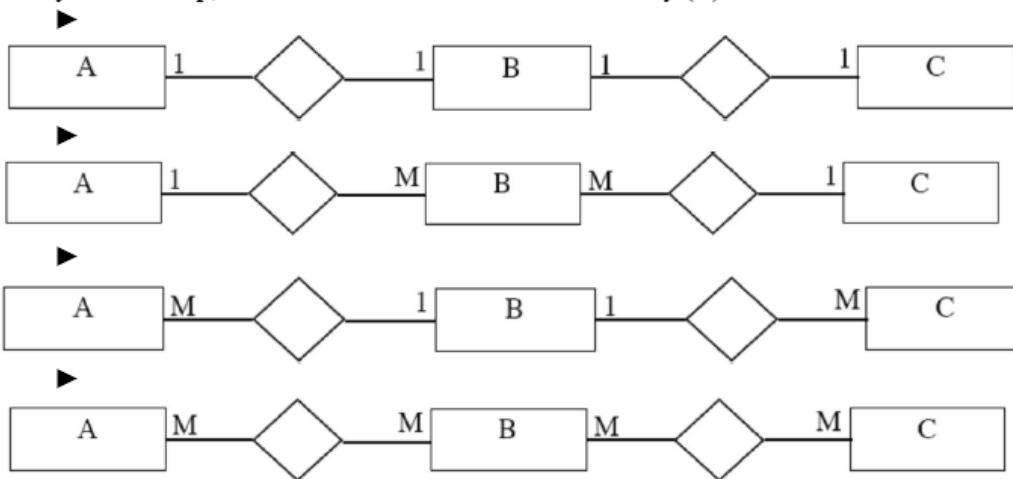**Question No: 2 (Marks: 1) - Please choose one**
Which of the following is true for the relational model?
□►□Degree of a relation is the number of rows in a relation.
□►□Null value is a blank or zero value given to an attribute value when its value is inapplicable or its value
is unknown.
□►□Complex key is a key consisting of more than one attribute.
□►□Constraint is a rule that restricts the values in a database.

Question No: 3 (Marks: 1) - Please choose one
Which one of the following four E-R diagrams is the typical result you obtain when you

initially start with an E-R diagram containing just two entities, A and C, in a Many-to-Many relationship, and then introduce an associative entity (B).

Question No: 4 (Marks: 1) - Please choose one
Which of the following most certainly implies the need for an entire table to implement?
► A binary relationship
► A ternary relationship
► A recursive relationship
► An identifying relationship

Question No: 5 (Marks: 1) - Please choose one
Which of the following constraints enforces entity integrity?
► PRIMARY KEY
► FOREIGN KEY
► CHECK
► NOT NULL

Question No: 6 (Marks: 1) - Please choose one
Which of the following is not true about relational tables?
► Column values are of the same kind.
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Question No: 7 (Marks: 1) - Please choose one
In a conceptual model for a university, what type of relationship exists between Grade and Student entities?
► 1:1
► 1:M
► M:M
► Ternary

Question No: 8 (Marks: 1) - Please choose one
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The Entity Relation Model models
► Entities, Relationships and Processes
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► Relationships
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Question No: 16 (Marks: 1) - Please choose one
As part of database naming conventions, attribute names should use suffixes such as ID, NUMBER or CODE for the _____.
► primary key
► foreign key
► index
► determinant

Question # 1 of 10 (Start time: 08:24:06 PM) Total Marks: 1
Within a table, each primary key value ____.
Select correct option:

 is a minimal superkey
 is always the first field in each table
 must be numeric
must be unique

Question # 2 of 10 (Start time: 08:24:41 PM) Total Marks: 1
User rights information is stored in
Select correct option:

 Physical database
Catalog
 Logical database
 Buffer

Question # 3 of 10 (Start time: 08:25:05 PM) Total Marks: 1
A relational database is
Select correct option:

one that consists of two or more tables
a database that is able to process tables, queries, forms, reports and macros

one that consists of two or more tables that are joined in some way
the same as a flat file database

Question # 4 of 10 (Start time: 08:26:04 PM) Total Marks: 1
Level of data at which entities or objects exist in reality is called
Select correct option:

Real world data
Schema for real world data
Meta data
Data about data

Question # 5 of 10 (Start time: 08:27:18 PM) Total Marks: 1
An entity type is
Select correct option:

defined when the database is actually constructed
a specific type such as an integer, text, date, logical etc
a coherent set of similar objects that we want to store data on (e.g. STUDENT, COURSE, CAR)
defined by the database designer

Question # 6 of 10 (Start time: 08:28:07 PM) Total Marks: 1
A table can be logically connected to another table by defining a ____.
Select correct option:

hyperlink
common attribute
primary key
superkey

Question # 7 of 10 (Start time: 08:29:37 PM) Total Marks: 1
A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

superkey
candidate key

primary key
secondary key

Question # 8 of 10 (Start time: 08:30:36 PM) Total Marks: 1
A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

superkey
candidate key
primary key
secondary key

Question # 9 of 10 (Start time: 08:31:03 PM) Total Marks: 1
Which model operates at the lowest level of abstraction?
Select correct option:

conceptual
internal
external
physical

Question # 10 of 10 (Start time: 08:32:32 PM) Total Marks: 1
A software package designed to store and manages databases
Select correct option:

Database

DBMS

Data model

Data

The Entity Relation Model models
Select correct option:

Entities, Relationships and Processes
Entities and Relationships
Relationships
Entities

Which levels are mostly used for Detailed DFD?
Select correct option:

Level-0, Level-1
Level-1, Level-2

Level-2, Level-3
Level-3, Level-4

Each table must have a _____ key.
Select correct option:

primary
secondary
logical
foreign

Data about data is metadata
Select correct option:

True
False

A description on a particular collection of data using the given data model
Select correct option:

Database
Relation
Schema
None

Within a table, each primary key value _____.
Select correct option:

is a minimal superkey
is always the first field in each table
must be numeric
must be unique

Which of the following describes the job of a database administrator?
Select correct option:

Development, implementation operation of the physical database
Creation of the system catalog
Monitoring and controlling database security and authorization: Setting up controls to ensure the quality and integrity of data
All of the above

Data Redundancy Means
Select correct option:

Security of data
Duplication of data
Management of data
Recovery of data

Data about data is database
Select correct option:

True
False
Partially True
None of the Above

A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

superkey
candidate key
primary key
secondary key

Question # 1 of 10 (Start time: 10:58:28 AM)   **Total Marks:** 1

The _____ function helps reduce the need to use mutiple OR conditions.

▶ **Select correct option:**

○   Like

○   **IN**

○   AND

○   BETWEEN

Question # 2 of 10 (Start time: 10:59:54 AM)   **Total Marks:** 1

Columns used to uniquely identify individual rows of a given table, may be specified to be not NOT NULL.

▶ **Select correct option:**

○ True

○ False

Question # 3 of 10 (Start time: 11:01:06 AM)   **Total Marks:** 1

In SQL, which command is used to delete rows from table.

▶ **Select correct option:**

⦿ DELETE

○ REMOVE

○ TRUNCATE

○ Both I and II

Question # 4 of 10 (Start time: 11:02:48 AM)   **Total Marks:** 1

Which of the fllowing clauses allows to sort the records in result set?

▶ **Select correct option:**

○ where

⦿ order by

○ from

○ having

Question # 5 of 10 (Start time: 11:03:50 AM)   **Total Marks:** 1

Which of the following statements creates a database named IMDB.

▶ **Select correct option:**

Question # 6 of 10 (Start time: 11:05:29 AM)   **Total Marks:** 1

Which of the following SQL statements used to control access to the data and to the database?

▶ **Select correct option:**

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- ○ GRANT
- ○ REVOKE
- ● Both GRANT and REVOKE
- ○ SELECT

Question # 7 of 10 (Start time: 11:06:30 AM)   **Total Marks:** 1

Which of the following is used with INSERT command to insert values in a DB table?

▶ **Select correct option:**

- ○ ONTO
- ● INTO
- ○ UPTO
- ○ WITH

Question # 8 of 10 (Start time: 11:08:05 AM)   **Total Marks:** 1

Which of the following is used to retrieve and insert information from database?

▶ **Select correct option:**

- ● DML
- ○ DDL
- ○ DCL
- ○ Both DML and DDL

Question # 9 of 10 (Start time: 11:09:27 AM)   **Total Marks:** 1

In SQL queries, while creating tables or relations in database, key columns may be specified by

▶ **Select correct option:**

- ○ Null
- ● Not Null
- ○ Data Type
- ○ None of the above

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Question # 10 of 10 (**Total Marks:** 1

Which of the following is not an aggregate function

▶ **Select correct option:**

○   AVG

○   SUM

◉ | UPPER

○   MAX

Quiz Start Time: 12:39 PM

_____ operators are the ones that require two operands on both sides of the operator.

▶ Select correct option:

○   Double

○   Tow sided

○   Binary

○   None of the given options

▶

Question No: 1   (Marks: 1)   - Please choose one

Which of the following is NOT a feature of Context DFD?

▶ one process (which represents the entire system)

▶ all sources/sinks (external entities)

▶ data flows linking the process to the sources and sinks (external entities)

▶ sub-processes (which explain and decomposed the major process into small processes)

Question No: 2   (Marks: 1)   - Please choose one

Which of the following is true for the relational model?

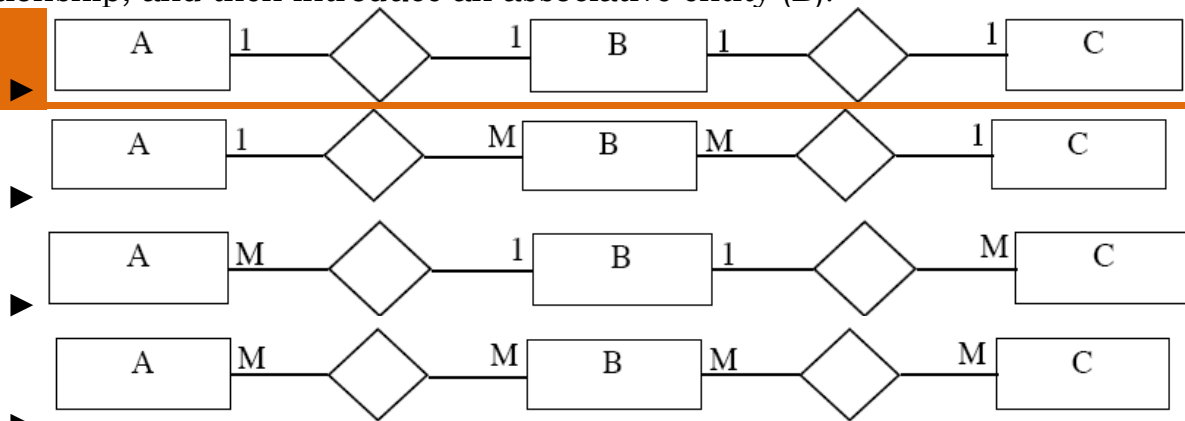☐☐☐☐☐☐▶☐Degree of a relation is the number of rows in a relation.

☐☐☐☐☐☐▶☐Null value is a blank or zero value given to an attribute value when its value is inapplicable or its value is unknown.

☐☐☐☐☐☐▶☐Complex key is a key consisting of more than one attribute.

☐☐☐☐☐☐▶☐Constraint is a rule that restricts the values in a database.

Question No: 3   (Marks: 1)   - Please choose one

Which one of the following four E-R diagrams is the typical result you obtain when you initially start with an E-R diagram containing just two entities, A and C, in a Many-to-Many relationship, and then introduce an associative entity (B).

▶   [A]—1——◇——1—[B]—1——◇——1—[C]

▶   [A]—1——◇——M—[B]—M——◇——1—[C]

▶   [A]—M——◇——1—[B]—1——◇——M—[C]

▶   [A]—M——◇——M—[B]—M——◇——M—[C]

first

Question No: 4   (Marks: 1)   - Please choose one
Which of the following most certainly implies the need for an entire table to implement?

   ▶ A binary relationship
   ▶ A ternary relationship
   ▶ A recursive relationship
   ▶ An identifying relationship
Pag no 88

Question No: 5   (Marks: 1)   - Please choose one
Which of the following constraints enforces entity integrity?
   ▶ PRIMARY KEY
   ▶ FOREIGN KEY
   ▶ CHECK
   ▶ NOT NULL
   Pag no134

Question No: 6   (Marks: 1)   - Please choose one

Which of the following is not true about relational tables?

► Column values are of the same kind.

► Each row is unique.

► Each column must have a unique name.

► The sequence of rows is significant.

Question No: 7   (Marks: 1)   - Please choose one
In a conceptual model for a university, what type of relationship exists between Grade and Student entities?
► 1:1
► 1:M
► M:M
► Ternary

Question No: 8   (Marks: 1)   - Please choose one
Controlling redundancy in a database management system DOES NOT help to
► avoid duplication

► avoid unnecessary wastage of storage space

► avoid unauthorised access to data

► avoid inconsistency among data

Question No: 9   (Marks: 1)   - Please choose one
Which of the following is INCORRECT with respect to file systems?

► At the physical level, pointer or hashed address scheme may be employed to provide a certain degree of data independence at the user level.
► A logical record is concerned with efficient storage of information in the secondary storage devices.
► Some physical organisations use pointers to record blocks to locate records on disk.
► The efficiency of a file system depends on how efficiently operations such as retrieve, insert, update, delete may be performed on the information stored in the file.

Question No: 10   (Marks: 1)   - Please choose one
Which of the following functions are NOT performed by a database administrator?

► Planning, designing and implementing database systems

► Establishing standards and procedures for database systems

► Communicating with database users

► Allocation of storage locations and data structures

Question No: 11   (Marks: 1)   - Please choose one

Select the correct statement about the ANSI/SPARC architecture.

► The conceptual level is a level of indication between the internal level and the external level.

► The internal level in a database system will definitely be relation

► Any given database has many conceptual schemas and one physical schema, but it has only one external schemas.

► The external level is not concerned with individual user perceptions, while the conceptual level
is concerned with a community user perception.

Question No: 12   (Marks: 1)   - Please choose one

Which of the following is a correct way to implement one-to-many relationship while designing tables?

► by splitting the data into two tables with primary key and
foreign key relationships.

► using a junction table with the keys from both the tables
forming the composite primary key of the junction table.

► by splitting each table into three

► as a single table and rarely as two tables with primary
and foreign key relationships.

Question No: 13   (Marks: 1)   - Please choose one

Which of the following is not a benefit of normalization?

► Minimize insertion anomolies

► Minimize deletion anomolies

► Minimize updation anomolies

► Maximize redundancy

Question No: 14   (Marks: 1)   - Please choose one

Consider the following relation R and its sample data. (Consider that these are the only tuples for the given relation)

EmpNo	DeptNo	ProjNo
1001	01	12
1001	01	13
1002	01	12
1003	01	14

Which of the following statements is NOT correct?

► The functional dependency (EmpNo, DeptNo) -> ProjNo holds over R.
► The functional dependency EmpNo -> DeptNo holds over R.
► The functional dependency ProjNo -> DeptNo holds over R.

► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.

Question No: 15   (Marks: 1)   - Please choose one
The Entity Relation Model models

► Entities, Relationships and Processes
► Entities and Relationships
► Relationships
► Entities

Question No: 16   (Marks: 1)   - Please choose one
As part of database naming conventions, attribute names should use suffixes such as ID, NUMBER or CODE for the _____.
► primary key
► foreign key
► index
► determinant

Question No: 1   (Marks: 1)   - Please choose one
Which of the following functions are NOT performed by a database administrator?
► Planning, designing and implementing database systems
► Establishing standards and procedures for database systems
► Communicating with database users
► Allocation of storage locations and data structures
Question No: 2   (Marks: 1)   - Please choose one
Identify the factor which enforces a relation in 3NF?
► Every non-key attribute is fully functionally dependent on primary key
► Every non-key attribute is partially dependent on super key
► The domain of attribute must include only atomic values.
► Every non-key attribute is non-transitively dependent on primary key.
Question No: 3   (Marks: 1)   - Please choose one

Consider two sets A and B. A contains 2 elements and B contains 3. How many elements do their cartesian product contains?

► 6
► 9
► 5
► 4

Question No: 4   (Marks: 1)   - Please choose one
Identify the operation which is NOT one of the parts of the five basic set operations in relational algebra?
► Join
► Union
► Cartesian Product
► Set Difference

Question No: 5   (Marks: 1)   - Please choose one
Consider the following statements.
A. An entity integrity constraint states that no primary key value can be null. B. A referential integrity constraint is specified between two relations.
C. A foreign key cannot be used to refer to its own relation. Identify which of the above statements is/are correct.
► Only A (may be this)
► Only B
► Only B and C
► Only A and B

Question No: 6   (Marks: 1)   - Please choose one
User rights information is stored in
► Physical database
► Catalog
► Logical database
► Buffer

Question No: 7   (Marks: 1)   - Please choose one
Given are the relations of student and Instructor

Student	
First Name	**Last Name**
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumari	Costa
Geetha	Zoysa
Prasad	Fernando

Instructor	
Fname	**Lname**
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romesh	Dias

Which relational algebra operation could have been applied on the pair of relations Student and Instructor to obtain the above data?
► Instructor – Student
► Student ∩ Instructor
► Instructor ÷ Student
► Student – Instructor

Question No: 8   (Marks: 1)   - Please choose one
Which one is the corrected way to implement M to M relation which designing data base
► using junction table with keys
► By splitting data into tables with PK and FK
► As a single table rarly as to tables with PK and FK

►By creating three tables and linking them through PK and FK

Question No: 9 (Marks: 1)   - Please choose one

Question No: 10 (Marks: 1)   - Please choose one
Which of the following concepts is applicable with respect to 3NF?
► Full functional dependency
► Any kind of dependency
► Transitive dependency
► Partial functional dependency

Question No: 11 (Marks: 1)   - Please choose one
Description on particular collection of data using data model
► Schema
► Relation
►Data base
► None of the above

Question No: 12 (Marks: 1)   - Please choose one
Which one is true regarding relation?
► Every attribute value Non atomic
► Attribute in table may not have unique name
►table order of the column is relevant
► the order of the rows is irrelevant

Question No: 1 (Marks: 1) - Please choose one
Which of the following is not a benefit of normalization?
► Minimize insertion anomolies
► Minimize deletion anomolies
► Minimize updation anomolies
► Maximize redundancy

Question No: 2 (Marks: 1) - Please choose one
Controlling redundancy in a database management system DOES NOT help to
► avoid duplication
► avoid unnecessary wastage of storage space
► avoid unauthorized access to data
► avoid inconsistency among data

Question No: 3 (Marks: 1) - Please choose one
In a conceptual database model, which of the following most likely represents a valid identifier for a class grades?
► StudentID
► StudentID, CourseID
► StudentID, CourseID, InstructorID
► StudentID, CourseSectionID

Question No: 4 (Marks: 1) - Please choose one
Identify the operation which is NOT one of the parts of the five basic set operations in relational algebra?
► Join
► Union
► Cartesian Product
► Set Difference

Question No: 5 (Marks: 1) - Please choose one
Making a change to the conceptual schema of a database but not affecting the existing external schemas is an example of

► Physical data independence.
► Concurrency control.
► Logical data independence.
► Functional dependency

Question No: 6 (Marks: 1) - Please choose one

Select the correct statement among the following on proper naming of schema constructs:

► Entity type name applies to all the entities belonging to that entity type and therefore a plural name is selected for entity type.
► In the narrative description of the database requirements, verbs tend to indicate the names of relationship types.
► The nouns arising from a database requirement description can be considered as names of attributes.
► Additional nouns which are appearing in the narrative description of the database requirements represent the weak entity type names.

Question No: 7 (Marks: 1) - Please choose one

Identify the constraint that limits the values that can be placed in a column.
► Not null
► Check
► Foreign Key
► Unique

Question No: 8 (Marks: 1) - Please choose one

Identify the INCORRECT statement among the given.
► An entity may be an object with a physical existence like a car, a house or an Employee.
► One cannot consider something which has conceptual existence like a course in a degree program as an entity.
► Age can be considered as a single value attribute of a person.
► An entity type describes the schema or intension for a set of entities which share the same structure.

Question No: 9 (Marks: 1) - Please choose one

Select the correct statement among the following.
► Role names are not technically necessary in relationship types when all the participating entity types are distinct.
► When different entity types participate only once in a single relationship type it is called a recursive relationship.
► Cardinality ratios for binary relationship are displayed on Entity Relationship Diagrams by using a diamond shape notation□□□□□□□.
► Partial participation which is also called existence dependency is displayed as a double line connecting the participating entity type to the relationship imrangee.

Question No: 10 (Marks: 1) - Please choose one

If W, X, Y and Z are attributes of a relation, which of the following inference rules for functional dependencies is correct?
► If (X, Z) -> Y then X -> Y and Z -> Y.
► If X -> Y and X -> Z then X -> (Y, Z).
► If X Y then Y -> X
► If X -> Y then (X, Z) -> (Y,W).

Question No: 11 (Marks: 1) - Please choose one

Which of the following is not a benefit of normalization?
► Minimize insertion anomolies
► Minimize deletion anomolies
► Minimize updation anomolies
► Maximize redundancy

Question No: 12 (Marks: 1) - Please choose one
A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
► superkey
► candidate key
► primary key
► secondary key

Question **No: 13 (Marks: 1) - Please choose one**
Incase of Context-level Diagram, the system is represented by
Select correct option:
►One process atleast
►Two processes atleast
►One process only
►Any number of processes

Question **No: 14 (Marks: 1) - Please choose one**
A_____is used to maintain a connection between the users of the database system.
Select correct option:
►Mail server
►File Server
►Client-server
►None of the given.

Question # 10 of 10 (Start time: 07:09:26 PM) Total Marks: 1
"Unary relationship" is one which involves
Select correct option:

Single entity
 Two entities
 Many entities
 No entity

Question # 9 of 10 (Start time: 07:09:02 PM) Total Marks: 1
Normalization is a process of restructuring a relation to
Select correct option:

minimize duplication of data in a database
 maximize duplication of data to ensure reliability
 make it of uniform size
 allow addition of data
Question # 8 of 10 (Start time: 07:08:43 PM) Total Marks: 1
in "many to many relationship" one instance of first entity can be mapped with many instances of second entity

Select correct option:

true
false

Question # 7 of 10 (Start time: 07:08:24 PM) Total Marks: 1
Binary relationships are those, which are established between
Select correct option:

One entity type
Two entity type
Three entity type
Unlimited entities

Question # 6 of 10 (Start time: 07:07:58 PM) Total Marks: 1
In "One to Many" cardinality one instance of a relation is mapped with
Select correct option:

many instances of second entity type
One instance of second entity type
Primary key of 2 relations
none of above

DML perform functions such as
Select correct option:

Insertion
Deletion
Creation of database
All of above

Unary operations involves
Select correct option:

Only one relation
Only two relations
More than two relations
Not more than five relations

An attribute y may be functionally dependent on (i) a composite attribute x,y (ii) a single attribute x (iii) no attribute
Select correct option:

i and ii
i and iii
ii and iii
iii
A relation which is in a higher normal form

Select correct option:

implies that it also qualifies to be in lower normal form
does not necessarily satisfy the conditions of lower normal form
is included in the lower normal form
is independent of lower normal forms

"Select" and "project" are the examples of
Select correct option:

Unary operations
Binary operations
Ternary operations
All of above

MC100204054 : Sikandar Hameed Shaikh

Time Left 38 sec(s)

Quiz Start Time: 03:07 PM

Question # 1 of 10 (Start time: 03:07:15 PM)   Total Marks: 1

DML perform functions such as

Select correct option:

○ Insertion

○ Deletion

○ Creation of database

○ All of above

Correct Answer is : ALL OF THE ABOVE.

MC100204054 : Sikandar Hameed Shaikh

Time Left 18 sec(s)

Quiz Start Time: 03:07 PM

Question # 2 of 10 (Start time: 03:08:31 PM)   Total Marks: 1
In "One to Many" cardinality one instance of a relation is mapped with
▶ Select correct option:

○ | many instances of second entity type |

○ | One instance of second entity type |

○ | Primary key of 2 relations |

○ | none of above |

Correct Answer is : many instances of second entity type.

▶

MC100204054 : Sikandar Hameed Shaikh

Time Left   81 sec(s)

Quiz Start Time: 03:07 PM

Question # 3 of 10 (Start time: 03:10:01 PM)   Total Marks: 1
A second Normal Form (2 NF) relation should
Select correct option:

○ | be in 1 NF |

○ | not have a composite key |

○ not have attributes dependent on key attribute

○ not have attributes dependent on one another

Correct Answer is : Be in I NF.

MC100204054 : Sikandar Hameed Shaikh

Time Left 64 sec(s)

Quiz Start Time: 03:07 PM

Question # 4 of 10 (Start time: 03:10:19 PM)   Total Marks: 1

"Select" and "project" are the examples of

Select correct option:

○ Unary operations

○ Binary operations

○ Ternary operations

○ All of above

Correct Answer is : Unary Operation   page 150

MC100204054 : Sikandar Hameed Shaikh

Time Left 62 sec(s)

Quiz Start Time: 03:07 PM

Question # 5 of 10 (Start time: 03:10:53 PM)   Total Marks: 1

Normalization of database is essential to (i) avoid accidental deletion of required data when some data is deleted (ii) eliminate inconsistencies when a data item is modified in

the database (iii) allows storage of data in a computer's disk (iv) use a database management system

Select correct option:

○   i and iii

○   i and ii

○   ii and iii

○   ii and iv

Correct Answer is : Option 2   page 176

MC100204054 : Sikandar Hameed Shaikh

Time Left   28 sec(s)

Quiz Start Time: 03:07 PM

Question # 6 of 10 (Start time: 03:11:56 PM)   Total Marks: 1

A relation which is in a higher normal form

Select correct option:

◉   implies that it also qualifies to be in lower norr

○   does not necessarily satisfy the conditions of l

○   is included in the lower normal form

○   is independent of lower normal forms

MC100204054 : Sikandar Hameed Shaikh

Time Left 79 sec(s)

Quiz Start Time: 03:07 PM

Question # 7 of 10 (Start time: 03:13:04 PM)   Total Marks: 1

"Unary relationship" is one which involves

Select correct option:

○ Single entity

○ Two entities

○ Many entities

○ No entity

Correct Answer is : Single entity

MC100204054 : Sikandar Hameed Shaikh

Time Left 34 sec(s)

Quiz Start Time: 03:07 PM

Question # 9 of 10 (Start time: 03:14:50 PM)   Total Marks: 1

An attribute y may be functionally dependent on (i) a composite attribute x,y (ii) a single attribute x (iii) no attribute

Select correct option:

○ i and ii

○   i and iii

○   ii and iii

○   iii

Correct Answer is : i and ii

MC100204054 : Sikandar Hameed Shaikh

Time Left   64 sec(s)

Quiz Start Time: 03:07 PM

Question # 10 of 10 (Start time: 03:16:10 PM)   Total Marks: 1

in "One to One Relationship" One instance of first entity type is mapped with two instances of second entity type

Select correct option:

○   true

○   false

Correct Answer is : False

Question # 1 of 10 (Start time: 10:00:41 AM) Total Marks: 1
Normalization of database is essential to (i) avoid accidental deletion of required data when some data is deleted (ii) eliminate inconsistencies when a data item is modified in the database (iii) allows storage of data in a computer's disk (iv) use a database management system
Select correct option:

i and iii
 i and ii

 ii and iii
ii and iv
Correct Answer is : i and ii

Question # 2 of 10 (Start time: 10:01:09 AM) Total Marks: 1
Normalization is a process of restructuring a relation to
Select correct option:

minimize duplication of data in a database
maximize duplication of data to ensure reliability
make it of uniform size
allow addition of data

Correct Answer is : minimize duplication of data in a database

Question # 3 of 10 (Start time: 10:01:29 AM) Total Marks: 1
Attributes are (i) properties of relationship (ii) attributed to entities (iii) properties of
members of an entity set
Select correct option:

i
i and ii
 i and iii
iii
Correct Answer is : properties of members of an entity set

Question # 4 of 10 (Start time: 10:01:53 AM) Total Marks: 1
The process of normalization
Select correct option:

is automatic using a computer program
requires one to understand dependency between attributes
is manual and requires semantic information
 is finding the key of a relation
Correct Answer is : requires one to understand dependency between attributes

Question # 5 of 10 (Start time: 10:02:14 AM) Total Marks: 1
A second Normal Form (2 NF) relation should
Select correct option:

be in 1 NF
not have a composite key
 not have attributes dependent on key attribute
not have attributes dependent on one another
Correct Answer is : be in 1 NF

Question # 6 of 10 (Start time: 10:02:23 AM) Total Marks: 1
"Select" and "project" are the examples of
Select correct option:

Unary operations
Binary operations
Ternary operations
All of above
Correct Answer is : Unary Operation

Question # 7 of 10 (Start time: 10:02:46 AM) Total Marks: 1
An attribute y may be functionally dependent on (i) a composite attribute x,y (ii) a single
attribute x (iii) no attribute
Select correct option:

i and ii
i and iii
ii and iii
iii
Correct Answer is : I and ii

Question # 8 of 10 (Start time: 10:03:23 AM) Total Marks: 1
DML perform functions such as
Select correct option:

Insertion
Deletion
Creation of database
All of above
Correct Answer is : All of the above.

Question # 9 of 10 (Start time: 10:03:33 AM) Total Marks: 1
A relation which is in a higher normal form
Select correct option:

implies that it also qualifies to be in lower normal form
does not necessarily satisfy the conditions of lower normal form
is included in the lower normal form
is independent of lower normal form
Correct Answer is : implies that it also qualifies to be in lower normal form

Question # 10 of 10 (Start time: 10:03:58 AM) Total Marks: 1
In "One to Many" cardinality one instance of a relation is mapped with
Select correct option:

many instances of second entity type
One instance of second entity type
Primary key of 2 relations
none of above
Correct Answer is : many instances of second entity type

This is a past 2nd Quiz from similar lectures.

Question # 1 of 10 (Start time: 01:13:48 PM) Total Marks: 1
A ____ relationship exists when an association is maintained within a single entity.
Select correct option:

Unary
Binary
Ternary
Weak

Question # 2 of 10 (Start time: 01:14:33 PM) Total Marks: 1
A collection of concepts that can be used to describe the structure of a database
Select correct option:

Database

DBMS

Data model

Data

Question # 3 of 10 (Start time: 01:16:00 PM) Total Marks: 1
Which of the following is NOT a component of a DFD?
Select correct option:

Dataflow
Datastore
External entities
Relationship between external entities

Question # 4 of 10 (Start time: 01:17:27 PM) Total Marks: 1

A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

 superkey
 candidate key
 primary key
 secondary key

Question # 5 of 10 (Start time: 01:18:32 PM) Total Marks: 1
A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

 superkey
 candidate key
 primary key
 secondary key

 Question # 6 of 10 (Start time: 01:19:51 PM) Total Marks: 1
A primary key is an attribute (or set of attributes) that has been chosen for an entity, whose values are used to uniquely identify a particular instance of an entity. True or false?
Select correct option:

 True
 False
 Partially True
 None of the given

Question # 7 of 10 (Start time: 01:20:37 PM) Total Marks: 1
Incase of Context-level Diagram, the system is represented by
Select correct option:

 One process atleast
 Two processes atleast
 One process only
 Any number of processes

Question # 8 of 10 (Start time: 01:22:03 PM) Total Marks: 1
Data Redundancy Means
Select correct option:

Security of data
Duplication of data
Management of data
Recovery of data

Question # 9 of 10 (Start time: 01:23:29 PM) Total Marks: 1
Which levels are mostly used for Detailed DFD?
Select correct option:

Level-0, Level-1
Level-1, Level-2
Level-2, Level-3
Level-3, Level-4

Question # 10 of 10 (Start time: 01:23:42 PM) Total Marks: 1
In a three-level DBMS architecture, the _____ level interacts directly with the users.
Select correct option:

external
conceptual
internal
physical

Question # 1 of 10 (Start time: 08:24:06 PM) Total Marks: 1
Within a table, each primary key value _____.
Select correct option:

is a minimal superkey
is always the first field in each table
must be numeric
must be unique

Question # 2 of 10 (Start time: 08:24:41 PM) Total Marks: 1
User rights information is stored in
Select correct option:

Physical database

Catalog
Logical database
Buffer

Question # 3 of 10 (Start time: 08:25:05 PM) Total Marks: 1
A relational database is
Select correct option:

one that consists of two or more tables
a database that is able to process tables, queries, forms, reports and macros
one that consists of two or more tables that are joined in some way
the same as a flat file database

Question # 4 of 10 (Start time: 08:26:04 PM) Total Marks: 1
Level of data at which entities or objects exist in reality is called
Select correct option:

Real world data
Schema for real world data
Meta data
Data about data

Question # 5 of 10 (Start time: 08:27:18 PM) Total Marks: 1
An entity type is
Select correct option:

defined when the database is actually constructed
a specific type such as an integer, text, date, logical etc
a coherent set of similar objects that we want to store data on (e.g. STUDENT, COURSE, CAR)
defined by the database designer

Question # 6 of 10 (Start time: 08:28:07 PM) Total Marks: 1
A table can be logically connected to another table by defining a ____.
Select correct option:

hyperlink
common attribute
primary key
superkey

Question # 7 of 10 (Start time: 08:29:37 PM) Total Marks: 1
A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

superkey

candidate key
primary key
secondary key

Question # 8 of 10 (Start time: 08:30:36 PM) Total Marks: 1
A candidate key that does not have a null value and is selected to uniquely identify
all other attribute values in any given row is called a _____.
Select correct option:

superkey
candidate key
primary key
secondary key

Question # 9 of 10 (Start time: 08:31:03 PM) Total Marks: 1
Which model operates at the lowest level of abstraction?
Select correct option:

conceptual
internal
external
physical

Question # 10 of 10 (Start time: 08:32:32 PM) Total Marks: 1
A software package designed to store and manages databases
Select correct option:

Database
DBMS
Data model
Data

The Entity Relation Model models
Select correct option:

Entities, Relationships and Processes
Entities and Relationships
Relationships
Entities

Which levels are mostly used for Detailed DFD?
Select correct option:

Level-0, Level-1
Level-1, Level-2
Level-2, Level-3
Level-3, Level-4

Each table must have a ____ key.
Select correct option:

primary
secondary
logical
foreign

Data about data is metadata
Select correct option:

True
False

A description on a particular collection of data using the given data model
Select correct option:

Database
Relation
Schema
None

Within a table, each primary key value ____.
Select correct option:

is a minimal superkey
is always the first field in each table
must be numeric
must be unique

Which of the following describes the job of a database administrator?
Select correct option:

Development, implementation operation of the physical database
Creation of the system catalog
Monitoring and controlling database security and authorization: Setting up controls to ensure the quality and integrity of data
All of the above

Data Redundancy Means
Select correct option:

Security of data
Duplication of data
Management of data
Recovery of data

Data about data is database

Select correct option:

True
False
Partially True
None of the Above

A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a ____.
Select correct option:

superkey
candidate key
primary key
secondary key

Question No: 1   (Marks: 1)   - Please choose one
Which of the following is NOT a feature of Context DFD?
►one process (which represents the entire system)

►all sources/sinks (external entities)

►data flows linking the process to the sources and sinks (external entities)

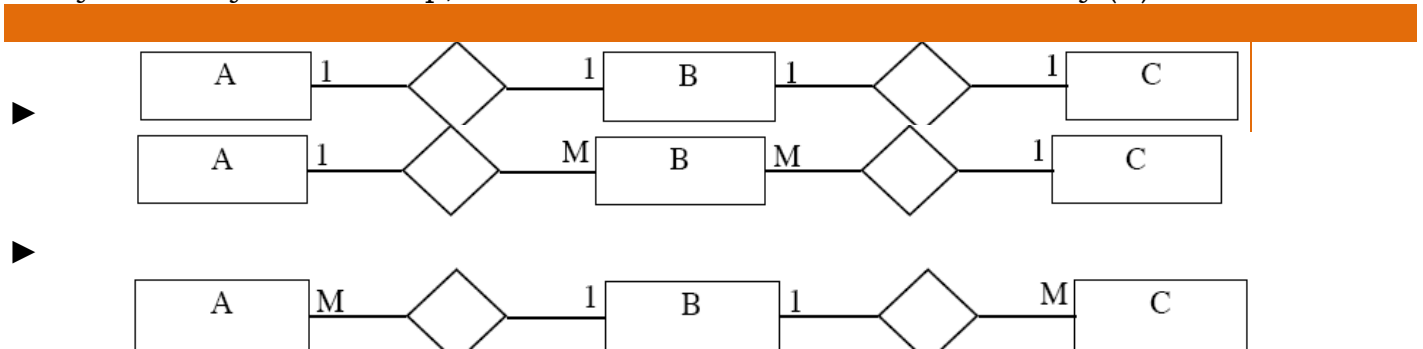►sub-processes (which explain and decomposed the major process into small processes)

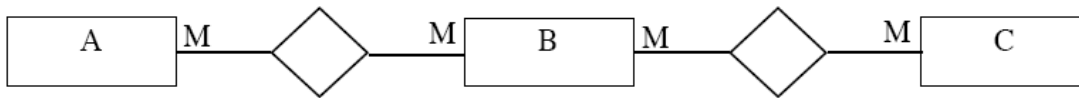**Question No: 2   (Marks: 1)   - Please choose one**
Which of the following is true for the relational model?
▢▢▢▢▢▢►▢Degree of a relation is the number of rows in a relation.

▢▢▢▢▢▢►▢Null value is a blank or zero value given to an attribute value when its value is inapplicable or its value is unknown.

▢▢▢▢▢▢►▢Complex key is a key consisting of more than one attribute.

▢▢▢▢▢▢►▢Constraint is a rule that restricts the values in a database.

Question No: 3   (Marks: 1)   - Please choose one
Which one of the following four E-R diagrams is the typical result you obtain when you initially start with an E-R diagram containing just two entities, A and C, in a Many-to- Many relationship, and then introduce an associative entity (B).

►

►

►

Which of the following most certainly implies the need for an entire table to implement?

► A binary relationship
► A ternary relationship
► A recursive relationship
► An identifying relationship

Question No: 5   (Marks: 1)   - Please choose one
Which of the following constraints enforces entity integrity?
► PRIMARY KEY
► FOREIGN KEY
► CHECK
► NOT NULL

Question No: 6   (Marks: 1)   - Please choose one
Which of the following is not true about relational tables?
► Column values are of the same kind.

► Each row is unique.

► Each column must have a unique name.

► The sequence of rows is significant.

Question No: 7   (Marks: 1)   - Please choose one
In a conceptual model for a university, what type of relationship exists between Grade and Student entities?
► 1:1
► 1:M
► M:M
► Ternary

Question No: 8   (Marks: 1)   - Please choose one
Controlling redundancy in a database management system DOES NOT help to
► avoid duplication

► avoid unnecessary wastage of storage space

► avoid unauthorised access to data

► avoid inconsistency among data

Which of the following is INCORRECT with respect to file systems?

►At the physical level, pointer or hashed address scheme may be employed to provide a certain degree of data independence at the user level.
►A logical record is concerned with efficient storage of information in the secondary storage devices.
► Some physical organisations use pointers to record blocks to locate records on disk.
► The efficiency of a file system depends on how efficiently operations such as retrieve, insert, update, delete may be performed on the information stored in the file.

Question No: 10   (Marks: 1)   - Please choose one
Which of the following functions are NOT performed by a database administrator?

►Planning, designing and implementing database systems

►Establishing standards and procedures for database systems

►Communicating with database users

►Allocation of storage locations and data structures

Question No: 11   (Marks: 1)   - Please choose one
Select the correct statement about the ANSI/SPARC architecture.
► The conceptual level is a level of indication between the internal level and the external level.

► The internal level in a database system will definitely be relational.

►Any given database has many conceptual schemas and one physical schema, but it has only one external schemas.

level
► The external level is not concerned with individual user perceptions, while the conceptual
is concerned with a community user perception.

Question No: 12   (Marks: 1)   - Please choose one
Which of the following is a correct way to implement one-to-many relationship while designing tables?
►by splitting the data into two tables with primary key
and foreign key relationships.

►using a junction table with the keys from both the tables forming the composite primary key of the junction table.

►by splitting each table into three
►as a single table and rarely as two tables with primary
and foreign key relationships.

Question No: 13   (Marks: 1)   - Please choose one
Which of the following is not a benefit of normalization?
►Minimize insertion anomolies
►Minimize deletion anomolies
►Minimize update anomolies
►Maximize redundancy

EmpNo	DeptNo	ProjNo
1001	01	12
1001	01	13
1002	01	12
1003	01	14

Question No: 14   (Marks: 1)   - Please choose one   Consider the following relation R and its sample data. (Consider that these are the only tuples for the given relation)

Which of the following statements is NOT correct?

► The functional dependency (EmpNo, DeptNo) -> ProjNo holds over R.
► The functional dependency EmpNo -> DeptNo holds over R.
► The functional dependency ProjNo -> DeptNo holds over R.

► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.

Question No: 15   (Marks: 1)   - Please choose one
The Entity Relation Model models

► Entities, Relationships and Processes
► Entities and Relationships
► Relationships
► Entities

Question No: 16   (Marks: 1)   - Please choose one
As part of database naming conventions, attribute names should use suffixes such as ID, NUMBER or CODE for the _____.
►primary key
►foreign key
►index
►determinant

Q- Which of the following constraints enforces entity integrity?
PRIMARY KEY
FOREIGN KEY
CHECK
NOT NULL

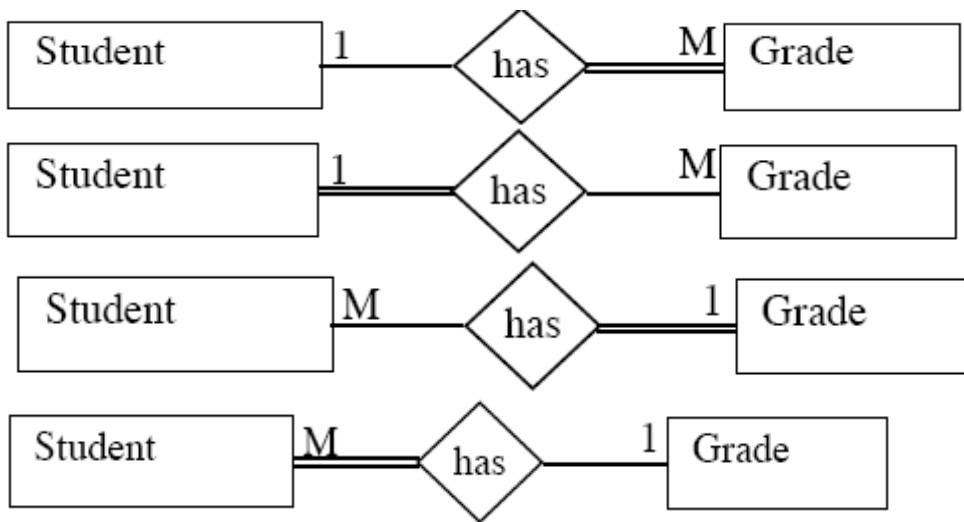
Q- Which of the following statements is correct?

PK can have NULL

PK in a relation is a key in some other relation

PK can be composite

PK must be selected from the list of secondary keys

Q- Which one of the following E-R diagrams most correctly represents the relationship between Student and Grade entities?

| Student | 1 —— has —— M | Grade |

| Student | 1 == has —— M | Grade |

| Student | M —— has == 1 | Grade |

| Student | M == has —— 1 | Grade |

Q- Which of the following most certainly implies the need for an entire table to implement?

A binary relationship
A ternary relationship
A recursive relationship
An identifying relationship

Q- A database system allows the following EXCEPT

management and control of data towards an efficient working of an organisation.

more critical functions in organisations to be computerised and the need to keep a large volume of data available in an up to the minute current state increased.

any user to access all its data.

integration of data across multiple applications into a single application.

Q- Which of the following enforces a relation into 1st normal form?
► The domain of attribute must include only atomic values.

► Every non-key attribute is fully functionally dependent on primary key
► non-key attribute is non-transitively dependent on primary key.

► Every non-key attribute is partially dependent on super key

Q- Consider the following set of functional dependencies (FDs) on the following relational schema.
Emp_No -> {Ename, Bdate, Address, Dept_No}
Dept_No -> {Dname, Mgr_No}
The additional FD which can be inferred from the above set of FDs is

Emp_No -> {Dname, Mgr_No}
Emp_Name -> Dept_No .
Emp_Name -> Dept_Name .
Emp_Name, Dept_No -> Mgr_No .
Q- Select the correct statement about the ANSI/SPARC architecture.
► The conceptual level is a level of indication between the internal level and the external level.

► The internal level in a database system will definitely be relational.

► Any given database has many conceptual schemas and one physical schema, but it has only one external schemas.

► The external level is not concerned with individual user perceptions, while the conceptual level
is concerned with a community user perception.
Q- Which of the following is a feature of PRIMARY KEY constraint?
unique identifier for a row within a database table.

allow any actions that would destroy links between tables

limit the values that can be placed in a column.

enforces that the column will only accept null values.

Q- Structural constraints of a relationship type refer to

► identifying the owner entity type relevant to a given entity type

► whether the existence of an entity depends on it being related to another entity via the relationship type.

► the role that a participating entity from the entity type plays in each relationship instance.

► the constraints applicable in granting access to tables, columns and views in a database

schema.

Q- Which of the following is true about relational schema?
► The sequence of columns is significant
► The sequence of rows is significant.

► Contains only derived attributes.
► Values are atomic.

Q- A ____ relationship exists when an association is maintained within a single entity.

unary
ternary
binary
weak

Q- Which of the following is a correct way to implement one-to-many relationship while designing tables?

► by splitting the data into two tables with primary key and
foreign key relationships.

► using a junction table with the keys from both the tables forming the composite primary key of the junction table.

► by splitting each table into three
► as a single table and rarely as two tables with primary
and foreign key relationships.

Q- Identify the correct statement.
► Entity integrity constraints specify that primary key values can be composite.

► Entity integrity constraints are specified on individual relations.

► Entity integrity constraints are specified between weak entities.

► When entity integrity rules are enforced, a tuple in one relation that refers to another relation must refer to an existing tuple.

Q- A software package designed to store and manage databases
    Database
DBMS
    Data model
    Data

Q- Who is responsible for authorizing access to the database, for coordinating and monitoring its use?
Select correct option:

    Database Designer
    Database Administrator
    End User
    Application Programmer

Q- Consider the following relation R and its sample data. (Consider that these are the only tuples for the given relation)

EmpNo	DeptNo	ProjNo
1001	01	12
1001	01	13
1002	01	12
1003	01	14

Q- Which of the following statements is NOT correct?

► The functional dependency (EmpNo, DeptNo) -> ProjNo holds over R.
► The functional dependency EmpNo -> DeptNo holds over R.
► The functional dependency ProjNo -> DeptNo holds over R.

► The functional dependency (EmpNo, ProjNo) -> DeptNo holds over R.

Q- Which feature of database provides conversion from inconsistent state of DB to a consistent state ensuring minimum data loss?
Select correct option:

      User accessible catalog
      Data processing
      Recovery service
      Authorization service

Q- Consider the given relations Student and Instructor as given below. Please note that Fname and Lname also denote the First Name and Last Name respectively.

Student

First Name	Last Name
Saman	Perera
Romesh	Dias
Jeeva	Silva
Nadee	Alwis
Kumari	Costa
Geetha	Zoysa
Prasad	Fernando

Instructor

Fname	Lname
Ajith	Gamage
Sujith	Hewage
Saman	Perera
Kasun	Peiris
Romesh	Dias

Which of the following statements is correct with respect to the two relations given above?

The two relations are not union-compatible since their attribute names differ.
The set operations such as CARTESIAN PRODUCT and DIVISION can be applied on these two relations.

To find out those students who work as instructors, it is necessary to perform the operation Student ∩ Instructor.

To find out the students who are not instructors, it is necessary to perform the operation Student ÷ Instructor.

Q- A candidate key that does not have a null value and is selected to uniquely identify all other attribute values in any given row is called a __.
Select correct option:

superkey
candidate key
primary key
secondary key