

Time: 60 min
M a r k s: 38



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Question No: 1 (M a r k s: 1)

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 \(M a r k s: 1 \)](#)

User rights information is stored in

- ▶ Physical database
- ▶ Catalog
- ▶ Logical database
- ▶ Buffer

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Question No: 3 (M a r k s: 1)

The ER- data model is an example of:

- ▶ Physical database
- ▶ Logical database
- ▶ Relational database
- ▶ Conceptual database

Question No: 4 (M a r k s: 1)

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 (M a r k s: 1)

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 (M a r k s: 1)

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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 (M a r k s: 1)

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 (M a r k s: 1)

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.

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Question No: 9 (M a r k s: 1)

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?

- ▶ 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 $\text{Student} \cap \text{Instructor}$.
- ▶ To find out the students who are not instructors, it is necessary to perform the operation $\text{Student} \div \text{Instructor}$.

[Question No: 10 \(M a r k s: 1 \)](#)

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?

- ▶ 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 $\text{Student} \div \text{Instructor}$.

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Question No: 11 (Marks: 1)

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 ProjNo $\rightarrow$ DeptNo holds over R.
- ▶ The functional dependency (EmpNo, ProjNo) $\rightarrow$ DeptNo holds over R.
- ▶ The functional dependency DeptNo $\rightarrow$ ProjNo holds over R.
- ▶ The functional dependency EmpNo $\rightarrow$ DeptNo holds over R.

Question No: 12 (Marks: 1)

A collection of related data is

- ▶ Logical model
- ▶ Database
- ▶ Data
- ▶ Relational model

Question No: 13 (Marks: 1)

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)

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)

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)

Consider the following statements.

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- 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: 17 (Marks: 2)

If there is one super type and there are three subtypes, then how many relations should be created?

Question No: 18 (Marks: 2)

Name the two types of unary operations on relational algebra.

Question No: 19 (Marks: 2)

Label the following diagram related to DFD

- 1...
- 2...

Answer:

- 1. Data Store
- 2. External Entity

Question No: 20 (Marks: 3)

What is DML (Data Manipulation Language)?

Question No: 21 (Marks: 3)

"Student CGPA (StdCGPA) is identified through student name (StdName)"

Represent the above statement into the functional dependency (FD) notation.

Question No: 22 (Marks: 5)

Name the four basic operations (base operations) in relational algebra.

Question No: 23 (Marks: 5)

Differentiate Total and Partial Completeness Constraints.