

Quiz # 2

Name:

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Roll #:

BSSEL3058

Time: 20 minutes

Marks: 20

Solve the Following MCQs. (Marks-10)

(CLO-2)

Question # 1: Which of the following is a responsibility of a Database Administrator (DBA)?

- a) Designing user interfaces
- b) Creating applications ✓
- c) Controlling access and ensuring security
- d) Developing compilers

Question # 2: Which of the following best defines a data model?

- a) A blueprint for application development
- b) A conceptual framework for structuring data ✓
- c) A programming language
- d) A set of predefined database queries

Question # 3: Which type of data model is closest to how end users perceive data?

- a) Physical Data Model ✓
- b) Conceptual Data Model
- c) Network Model
- d) Hierarchical Model

Question # 4: What is a database schema?

- a) The current state of a database ✓
- b) The description of a database structure

- c) A collection of database queries
- d) A programming language for databases

**Question # 5: Which of the following statements about schemas and instances is true?**

- a) Database instances change over time, but the schema remains fixed ✓
- b) A schema defines the constraints but does not store data
- c) The schema is updated every time a database update occurs
- d) Instances and schemas are the same

**Question # 6: Which attribute type can be divided into smaller sub-parts?**

- a) Simple
- b) Composite
- c) Multi-valued ✓
- d) Derived

**Question # 7: Which notation is used to represent total participation in an ER diagram?**

- a) Single Line
- b) Double Line ✓
- c) Dashed Line
- d) Arrow

**Question # 8: Which of the following is an example of a weak entity?**

- a) Student
- b) Course
- c) Dependent ✓
- d) Instructor

**Question # 9: Which of the following represents a one-to-many relationship?**

- a) A department has multiple employees ✓
- b) An employee has multiple departments
- c) A project is managed by multiple employees
- d) A company owns only one building

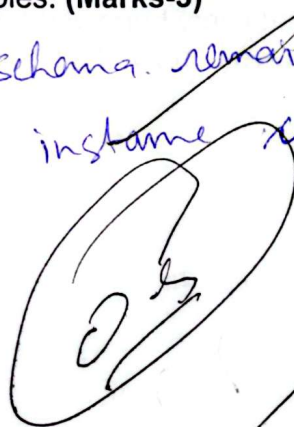
**Question # 10: What does cardinality represent in an ER diagram?**

- a) Number of attributes in an entity
- b) Number of instances in a table
- c) Number of relationships between entities ✓
- d) Number of constraints on a database

**Question # 5: Explain the difference between a database schema and a database instance with 2 examples. (Marks-3)**

(CLO-2)

Database schema remains fixed. eg: Student name  
whereas instance changes eg: Student age.



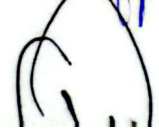
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**Question # 6: Explain the difference between strong and weak entities with examples. (2 Marks)**

(CLO-2)

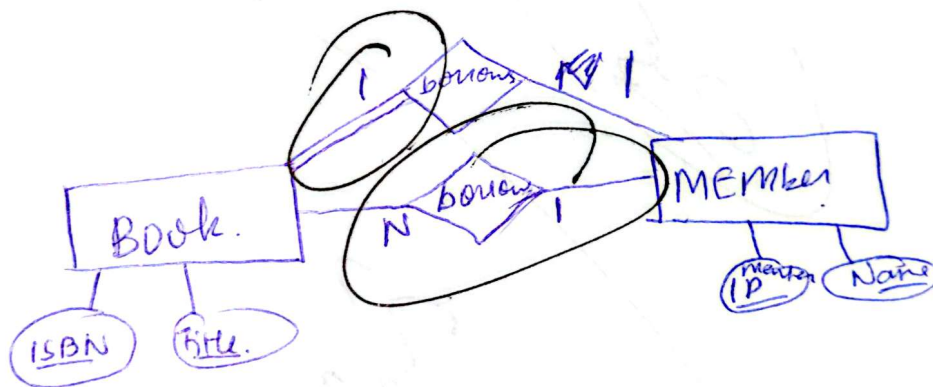
Strong entities are the one that aren't dependent on other entities and they have a primary key to differentiate them while the weak entities are dependent on other entities and don't have a primary key or unique attributes to differentiate it.

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**Question # 7:** Design an Entity-Relationship (ER) diagram for a **Library System** that includes the **Book** and **Member** entities. The **Book** entity has two attributes: **ISBN**, and **Title**. Similarly, the **Member** entity has two attributes: **Member ID**, and **Name**. In this system, each member can borrow multiple books, but each book can only be borrowed by one member at a time. The ER diagram should clearly depict the entities, their attributes, the "Borrows" relationship, and enforce the correct cardinality constraints, where a single member can borrow many books, but each book is associated with only one member. Additionally, participation constraints should be specified, ensuring that every borrowed book is linked to a member, while a member may or may not have borrowed a book. (5 Marks) (CLO-2)



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