Conceptual Design

TOTAL POINTS 13

1. Identify the sequence of steps to be taken to build an information system with a relational database — 1 point

   - ○ Logical design, conceptual design, physical design
   - ◉ Conceptual design, logical design, physical design
   - ○ Conceptual design, physical design, logical design

2. What is the input, process and output of the conceptual design for a relational database? — 1 point

   - ◉ Input: business requirements. Process: mapping the requirements in terms of entities, relations, attributes, primary keys and cardinalities. Output: The Entity-relationship diagram
   - ○ Input: ER diagram. Process: mapping the Entity-relationship diagram to a normalized database. Output: the relational database
   - ○ Input: mapping the requirements in terms of entities, relations, attributes, primary keys and cardinalities. Process: Create, populate and query the database with SQL. Output: The Entity-relationship and the physical database

3. What is the input, process and output of the logical design for a relational database? — 1 point

   - ○ Input: mapping the requirements in terms of entities, relations, attributes, primary keys and cardinalities. Process: Create, populate and query the database with SQL. Output: The Entity-relationship and the physical database
   - ◉ Input: ER diagram. Process: mapping the Entity-relationship diagram to relational model and apply the normal forms. Output: a normalized relational model
   - ○ Input: business requirements. Process: mapping the requirements in terms of entities, relations, attributes, primary keys and cardinalities. Output: The Entity-relationship diagram

4. What is the input, process and output of the physical design for a relational database? — 1 point

   - ○ Input: mapping the requirements in terms of entities, relations, attributes, primary keys and cardinalities. Process: Create, populate and query the database with SQL. Output: The Entity-relationship diagram and the physical database
   - ○ Input: ER diagram. Process: mapping the Entity-relationship diagram to relational model and apply the normal forms. Output: a normalized relational model
   - ◉ Input: normalized relational data model. Process: Create, populate and query the database with SQL. Output: The physical database

5. An **entity** is a real-world object distinguishable from other objects, and it is described as a set of relationships — 1 point

   - ○ True
   - ◉ False

6. An **entity set** is: — 1 point

   - ○ A collection of similar entities is where each entity has the same set of attributes containing same values
   - ◉ A collection of similar entities is where each entity has the same set of attributes containing different values

7. What is the concept of redundancy ? — 1 point

   - ◉ Storage of the same data several times in different places in the same databases
   - ○ Storage of data several times in different places in different databases

8. An **attribute** is the property or characteristic of an entity — 1 point

   - ◉ True
   - ○ False

9. **Inconsistency** is: — 1 point

   - ◉ when redundant data are not equal to each other
   - ○ when redundant data are equal

10. **Cardinality** in an entity-relationship model is: — 1 point

    - ◉ indicates the number of entities with which a given entity may be related
    - ○ indicates the number of tuples of a relation

11. A **primary key** is: — 1 point

    - ◉ An attribute that uniquely identify each entity
    - ○ A real-world object distinguishable from other objects, and it is described as a set of relationships

12. A **degree** in an entity -relationship model is: — 1 point

- (●) Indicates the number of entities that a relationship associates
- ( ) A collection of similar entities where each entity has the same set of attributes containing different values

13. An **instance** is the actual content of the database or let´s say the data at a particular instant. Database instances tend to change with time — 1 point

- (●) True
- ( ) False

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