



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Question 1. Answer the following short questions: (6x5=30)

- a) What is structural independence, and why is it important?
- b) Explain the differences between data, information, and a database.
- c) Describe Metadata with an example.
- d) What is SQL? Define two different clauses of SQL with examples.
- e) What are the main components of a database system?
- f) Define database schema. How is it designed?

Answer the following questions. (3x10=30)

Question 2. What is the role of a DBMS, and what are its advantages? What are its disadvantages?

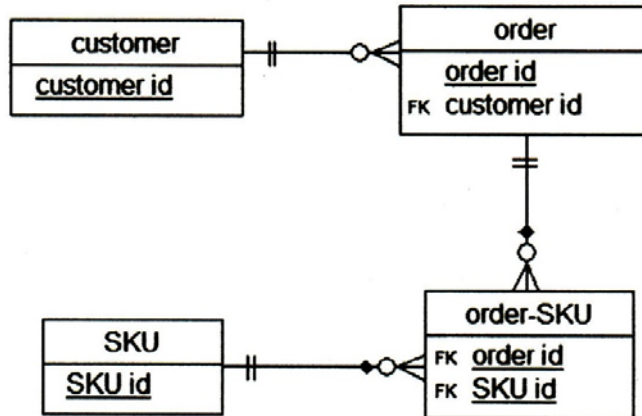
Question 3. Consider the following scenario:

A manufacturing company produces products. The following product information is stored: product name, product ID, and quantity on hand. These products are made up of many components. Each component can be supplied by one or more suppliers. The following component information is kept: component ID, name, description, suppliers who supply them, and products in which they are used.

Create an ERD to show how you would track this information.

Show entity names, primary keys, attributes for each entity, relationships between the entities and cardinality.

Question 4. Consider the following ERD to answer the question given below it.



- i. What is the relationship between **customer** and **order**?
- ii. Write an SQL query to display all orders given by a customer whose customer_id = 3412
- iii. Write an SQL query to display all items in SKU whose SKU_id is between 50 to 100.