

**MC-107**

May-2017

**B.C.A., Sem.-II****CC-110 : Database Management System-I****Time : 3 Hours]****[Max. Marks : 70**

1. (A) Answer the following : (any two) 8
- Differentiate between a hierarchical model and a network model.
  - Using an example demonstrate how a 1-1 relationship is created between two tables,
  - Explain the E-R Model of a database. Give example to explain your answer.
  - What do you understand by a 1-M relationship ? How is it established between two tables ?
- (B) Answer the following : (any two) 6
- Discuss the function of DBMS in backup and recovery management.
  - What is the difference between Data, Database and DBMS ?
  - Differentiate between centralized and distributed database.
  - What is data redundancy ? What happens when data redundancy is not controlled ?
2. (A) Answer the following : (any two) 8
- What is referential integrity ? Why is it important in a database ?
  - Using an example differentiate between functional dependence and full functional dependence.
  - What is a foreign key ? What is its need in a table ? Give example to support your answer.
  - What is a composite entity ? When is it used ? Explain using example.
- (B) Answer the following : (any two) 6
- Explain the set operators : SELECT and PROJECT. Give examples.
  - What is a composite key ? Using an example explain when do we need to create a composite key.
  - Explain the concept of Entity Integrity. Why is it required in a table ?
  - Explain the significance of JOIN set operator. What are the different types of JOIN ?
3. (A) Answer the following : (any two) 8
- For the following notation :  
 SUPPLIER (supcode, supname, sup\_address, sup\_phone)  
 ITEM(itemcode, item\_name, item\_desc, price, sup\_code)  
 Identify the following :
    - Entity sets
    - Relationship Strength
    - Type of relationship
    - Composite attribute

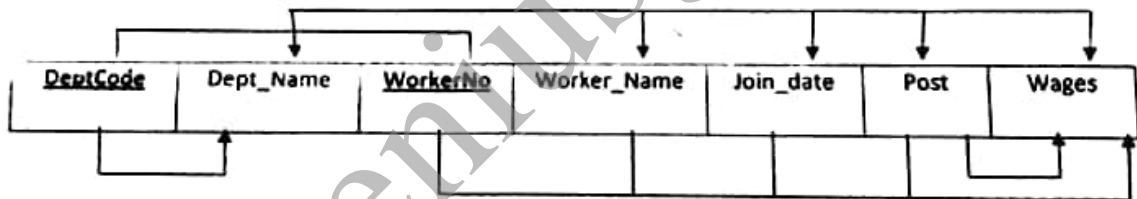
- (ii) What are the two conditions for an entity to be a weak Entity ?
- (iii) When is an entity said to be existence dependent and existence independent ?
- (iv) Draw an ER diagram for given case :
  - (a) One bank has many bank branches
  - (b) One bank branch can have many accounts
  - (c) One customers can have more than one account
  - (d) One bank branch gives many loans
  - (e) Many customer can take many loans

(B) Answer the following : (any two)

- (i) What is a derived attribute ? Give an example.
- (ii) Using an example explain the difference between single valued attribute and composite attribute.
- (iii) Explain the concept of Cardinality using an example.
- (iv) What is a recursive relationship ? Give example.

4. (A) Answer the following :

For the below dependency diagram answer the questions that follow:



- (1) DepCode  $\rightarrow$  Dept\_Name is \_\_\_\_\_ dependency.
- (2) Post  $\rightarrow$  Wages is \_\_\_\_\_ dependency.
- (3) DepCode, WorkerNo  $\rightarrow$  Dep\_Name, Worker\_Name, Join\_date, Post, Wages is \_\_\_\_\_ dependency
- (4) The table is in \_\_\_\_\_ normal form.
- (5) Normalize the above table to the next normal form.

**OR**

What are data anomalies ? Explain using an example the three types of anomalies. Also explain how these anomalies can be removed.

(B) Answer the following : (any two)

- (i) What do you understand by Partial Dependency ? With which normal form is it associated with ?
- (ii) When is a table in the First Normal Form ? Which all dependencies are possible in 1NF ?
- (iii) Define and discuss the concept of transitive dependency.
- (iv) What is normalization ? What is its role in a database ?

## 5. Fill in the blanks.

- (i) DBMS is an interface between user and the database.
- (ii) In RDBMS one row in a table is called as a \_\_\_\_\_.
- (iii) A se key is used for data retrieval.
- (iv) The primary key of the parent table appears as the f key in the child table.
- (v) An \_\_\_\_\_ is something about which data is collected and stored.
- (vi) The PRODUCT operator gives an output also known as the \_\_\_\_\_.
- (vii) The in operator returns only those rows that appear in both tables.
- (viii) A multiuser database which supports more than 50 users is called as an multi user database.
- (ix) A completely normalized table will have only \_\_\_\_\_ dependencies.
- (x) There is no transitive dependency in the \_\_\_\_\_ normal form.
- (xi) When two entities are associated in a relationship it is called as a \_\_\_\_\_ relationship.
- (xii) \_\_\_\_\_ is a set of possible values that an attribute can take.
- (xiii) The field 'SEASON' is a multival attribute as it can take multiple values like WINTER, SUMMER, etc.
- (xiv) A req attribute cannot be left empty.