

Seat No. : _____

XQ-117

April-2013

B.C.A. (Sem. – II)

CC – 110 : Database Management System – I

Time : 3 Hours]

[Max. Marks : 70

Instruction : Draw diagrams wherever required.

1. (a) Explain database types by Number of users and Data Location. **4**
- OR**
- Define Data, Information, DBMS, Metadata.
- (b) Explain Hierarchical Model. **4**
- OR**
- Explain Network Model.
- (c) Short note on Database System Environment. **6**
- OR**
- Explain DBMS functions.
2. (a) Explain Integrity rules with example. **4**
- OR**
- Define Table. Give its characteristics.
- (b) Explain Functional dependency and fully functional dependency with example. **4**
- OR**
- Define with example : Super Key, Primary key, Candidate Key and Secondary Key.
- (c) Explain Select, Product and Difference operator with example. **6**
- OR**
- Explain relationship in relational database with example.
3. (a) Explain non-identifying relationship, derived attribute with example. **4**
- OR**
- Explain identifying relationship, composite attribute with example.

- (b) Explain Weak Entities, Ternary Relationship with example. 4

OR

Explain Recursive Relationship, Multivalued Attribute with example.

- (c) Draw ER diagram for the following business rules using Crow's foot notation : 6

- (1) A basketball Association organizes games between the teams.
- (2) Each city in the country has one team as its representative.
- (3) Each team has maximum 12 players and minimum 10 players.
- (4) Each team has up to 3 coaches
- (5) During the season each team plays 2 games against each of the other teams.

OR

Draw ER diagram for the following business rules using Crow's foot notation.

- (1) A patient can make many appointments with one or more doctors in the hospital. A doctor can accept many appointments. However each appointment is made with only one doctor and one patient.
- (2) If kept, an appointment converts in a visit. A visit results in diagnosis and appropriate treatment.
- (3) One diagnosis can have many medicines and a same medicine can be given for many diagnosis.
- (4) Medicines are given to patients according to diagnosis.
- (5) Each patient visit is billed by one doctor, and each doctor can bill many patients.

4. (a) Define Normalization. Explain need for normalization. 4

OR

Define and discuss the concept of transitive dependency.

- (b) Explain 2NF and steps of conversion to 2NF with example. 4

OR

Explain 3NF and steps of conversion to 3NF with example.

- (c) Normalize the data till 3NF and draw the dependency diagram : 6

Roll_no	Name	Book_id	Book_name	Category_id	Categ_Name	Issue_date	Return_date
---------	------	---------	-----------	-------------	------------	------------	-------------

OR

Normalize the data till 3NF and draw the dependency diagram :

Inv_No	Prod_No	Prod_Name	Sale_date	Vend_No	Vend_name	Qty	Price
1	P1	Fan	21/01/2013	1	Rakesh	10	1000
1	P2	Chair	21/01/2013	2	John	5	3000
1	P3	Table	21/01/2013	1	Rakesh	5	5000
2	P1	Fan	25/01/2013	1	Rakesh	6	1000
2	P3	Table	25/01/2013	1	Rakesh	3	5000
4	P4	Bench	2/2/2013	3	Mohan	3	7000

5. Multiple Choice Questions :

14

- (1) _____ exists when different version of same data appears at different place.
 - (a) Data inconsistency
 - (b) Data integration
 - (c) Data security
 - (d) None of the above
- (2) _____ is a minimal super key.
 - (a) Super key
 - (b) Primary key
 - (c) Secondary key
 - (d) Candidate key
- (3) _____ attribute requires constant maintenance to ensure value is current.
 - (a) Composite
 - (b) Derived
 - (c) Simple
 - (d) Multivalued
- (4) Crow's Foot notation represent weak relationship by placing _____ line between entities.
 - (a) Solid
 - (b) Dashed
 - (c) Double
 - (d) None of the above
- (5) _____ join link tables by selecting all rows with common value in their common attribute of right table and all rows from left table.
 - (a) Left outer join
 - (b) Right outer join
 - (c) Full outer join
 - (d) Natural join
- (6) _____ model lacked structural interdependence.
 - (a) Hierarchical
 - (b) Network
 - (c) Relational
 - (d) Both (a) and (b)

- (7) _____ normal form have no partial dependency.
- (a) 1NF (b) 2NF
(c) 3NF (d) BCNF
- (8) _____ relationship can exists between occurrences of the same entity set.
- (a) Recursive (b) Unary
(c) Both (a) and (b) (d) None of the above
- (9) Derived attribute are sometimes referred as _____ attribute.
- (a) Computed (b) Simple
(c) Multivalued (d) Calculative
- (10) _____ entity is used to implement M : N relationship between two or more entities.
- (a) Associative (b) Weak
(c) Strong (d) All of the above
- (11) _____ is the set of possible values for a given attribute.
- (a) Entity (b) Relation
(c) Field (d) Domain
- (12) _____ DBMS software doesn't support distributed database.
- (a) MySQL (b) MS SQL Server
(c) Oracle (d) MS Access
- (13) _____ provide detailed description of all tables within database.
- (a) System catalog (b) Entity set
(c) Data Dictionary (d) All of the above
- (14) _____ attribute cannot be divided further.
- (a) Single-valued (b) Multivalued
(c) Composite (d) Simple
-