

**MAHATMA GANDHI UNIVERSITY**  
**MCA DEGREE EXAMINATION**  
**MODEL QUESTION PAPER**  
**(2011 Revised Syllabi)**  
**Third Semester**

**MCA 304 Database Management Systems**

**Time : Three hours**

**Maximum : 75 Marks**

**Part A**

**Answer any ten questions.**  
***Each question carries 3 marks.***

1. What is data? What do you mean by information? What are the differences between data and information?
2. What are the components of data dictionary? Discuss active and passive data dictionaries.
3. What is entity and attribute? Give some examples of entities and attributes in a manufacturing environment. Why are relationships between entities important?
4. What do you mean by data redundancy? What is the difference between controlled and uncontrolled redundancy? What is data independence?
5. Who is a DBA? What are the responsibilities of a DBA?
6. What is a transaction? Which are the properties of a transaction and explain each.
7. What is the difference between physical data independence and logical data independence ?
8. Define a NULL value? How do you retrieve null values from the database?
9. What is a database trigger? Which are the different kinds of triggers?
10. How do you use views during the application development?
11. Define a serializable schedule.
12. What is the difference between replication and fragmentation?

**(10 x 3 = 30 marks)**

**Part B**

***All questions carry equal marks.***

13. A. With a neat diagram, explain the structure of a database.

OR

B. Describe various components of DBMS environment and discuss how they relate to each other.

14. A. Describe the main characteristics of the database approach in contrast with the file oriented approach.

OR

B. Explain the following with their advantages and disadvantages.

- a. Hierarchical database model
- b. Network database model
- c. Relational database model

15.A. An organization purchases items from a number of suppliers. Suppliers are identified by SUP-ID. It keeps track of the number of each item type purchased from each supplier. It also keeps a record of supplier's addresses. Supplied items are identified by ITEM-TYPE and have description (DESC). There may be more than one such addresses for each supplier and the price charged by each supplier for each item type is stored.

Identify the entites and relationships for this organization and construct an E-R diagram. From the E-R diagram, write the scripts for creating a schema.

OR

B. Discuss on the various ways in which we can arrive at a good database design.

16.A. Explain the various ways in which database backup and recovery can be implemented.

OR

B. Explain the various ways in which concurrency control can be implemented in a database.

17.A. Write on the various algebraic operations that can be performed to manipulate the data in the database.

OR

B. How do you implement a distributed database in a real time environment?

**(5 X 9 = 45 marks)**