END TERM EXAMINATION

SECOND SEMESTER |MCA| MAY- JUNE 2016

Paper Code: MCA-108

Subject: Database Management System

Note: Attempt any five questions.

Q1:
(a) Define database. What are the characteristics of a modern DBMS? What are the categories of a modern DBMS?

(b) 'Design of DBMS depends on its architecture.' Justify your answer. Which is the most widely used architecture to design DBMS? Write about 3-tier architecture of DBMS and its different levels?

Q2:
(a) On which notation ER model is based on? Explain ER model with examples. What are various types of attributes?

(b) What are the main highlights of relational model? What are tables and views in a relation?

Q3:
(a) Differentiate between physical and logical database schema.

(b) What is data independence? Differentiate between logical and physical data independence?

Q4:
(a) Write briefly about:
- i Super key,
- ii Candidate key,
- iii Primary key,
- iv Cardinality,
- v Degree of relationship.

(b) Differentiate between
- i Generalization and Specialization

ii Domain constraint and Referential Integrity constraint

Q5:
(a) Write 12 rules of Dr E.F. Codd for relational DBMS.

(b) Write the various fundamental operations of relational algebra and calculus.

Q6:
(a) What are the steps in mapping process? Explain mapping weak entity sets and mapping hierarchical entities.

(b) Write the various set of SQL commands to define database schema.

Q7:
(a) Define functional dependency. What are Armstrong's axioms that when applied repeatedly, generates a closure of functional dependencies.

(b) Differentiate between 1NF and 2NF. What are the partial and transitive dependency?

Q8: Write a short note on (any two)
(a) Oracle architecture

(b) Cursors and Triggers

(c) Concurrency control and recovery.