

# END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY-JUNE 2016

Paper Code: MCA-108

Subject: Data Base Management Systems

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions. All questions carry equal marks.

- Q1 (a) Define database. What are the characteristics of a modern DBMS? What are the categories of DBMS users?  
(b) Design of DBMS depends on its architecture. Justify your answer. Which is the most widely used architecture to design DBMS? Write 3-tier architecture of DBMS and its different levels.
- Q2 (a) On which notion, 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: Superkey, Candidate key, Primary key, Cardinality, degree of relationship.  
(b) Differentiate between: Generalization and Specialization, domain constraints and referential integrity constraints.
- Q5 (a) Write twelve rules of Dr. E.F. Codd for relational DBMS.  
(b) Write the various fundamental operations of relational algebra and calculus.
- Q6 (a) What are steps in a 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 & 2NF. What is partial and transitive dependency?
- Q8 Write short notes on (any two):  
(a) Oracle architecture  
(b) Cursors & Triggers  
(c) Concurrency control and recovery

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