



Register Number:.....

**MCA DEGREE EXAMINATIONS: NOV/DEC 2014**

(Regulation 2009)

Second Semester

**MASTER OF COMPUTER APPLICATIONS**

MCA508: Database Management Systems

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

1. List four significant differences between file processing system and DBMS.
2. What is the difference between a weak and strong entity set.
3. Define natural join.
4. What is primary key?
5. List out the four techniques for optimization of disk-block access.
6. Mention the differences between a primary index and a secondary index.
7. Write the advantages of hash indices.
8. What are the steps involved in processing a query?
9. Define - ACID properties.
10. What is strict 2PL?

**PART B (5 x 16 = 80 Marks)**

11. a) (i) Mention the differences between the physical and logical data independence and explain. (6)
  - (ii) Construct an E-R diagram for an online book store. (10)
  - (OR)
  - b) (i) Draw the database system structure and explain its components. (8)
  - (ii) Describe the constraints for an E-R enterprise schema. (8)
12. a) Explain the set operations with examples.

**(OR)**

b) Summarize the first three normal forms with example.

13. a) (i) Explain the various RAID levels in database maintenance. (12)  
(ii) Explain the variable length records in file organization. (4)

**(OR)**

b) Construct a B+ tree where the number of pointers that will fit in one node is 4 for the following set of key values: ( 2,3, 5, 7, 11, 17, 19, 23, 29, 31)

14. a) (i) Write short notes on selection operation in query processing. (8)  
(ii) Write an algorithm for merge join. (8)

**(OR)**

- b) (i) Discuss about Heuristic optimization. (8)  
(ii) Evaluate the cost based optimization. (8)

15. a) (i) Describe the conflict serializability. (8)  
(ii) Explain time stamp ordering protocol. (8)

**(OR)**

- b) (i) Explain in detail about shadow paging. (8)  
(ii) Describe in detail about buffer management. (8)

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