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13MCA25

**Second Semester MCA Degree Examination, Dec.2018/Jan.2019**  
**Database Management Systems**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1
  - a. Define Database Management System. Explain its characteristics. (06 Marks)
  - b. Explain with proper diagram the three-scheme architecture of DBMS. (04 Marks)
  - c. Explain the main phases of database design with suitable diagram. (10 Marks)
  
- 2
  - a. Discuss intension and extension of DBMS. (04 Marks)
  - b. What are different types of attributes? Explain with example. (06 Marks)
  - c. Explain with proper example the different notations used in ER-diagram and what are the naming conventions of schema construct. (10 Marks)
  
- 3
  - a. With suitable example explain ER-to-relational mapping algorithm. (12 Marks)
  - b. Explain SELECT unary operation and prove it is commutative. (08 Marks)
  
- 4
  - a. Given the following database schema:  
 Sailors (Sid, name, rating, age)  
 Boats (bid, bname, color)  
 Reserves (Sid, bid, date)  
 Write the following queries in SQL:  
 i) Find the names of sailors reserved for boat number 500 (bid = 500).  
 ii) Find the names of sailors who have reserved green boat.  
 iii) Find the sailor having heighest rating.  
 iv) Delete all sailors with rating less than 10.  
 v) Update the rating of sailor with sid = 500 to sid = 900. (10 Marks)
  - b. Explain OUTERJOIN operations with suitable example. (10 Marks)
  
- 5
  - a. Explain SELECT-FROM-WHERE structure of basic queries in SQL. (10 Marks)
  - b. With suitable example explain aggregate functions in SQL. (10 Marks)
  
- 6
  - a. What is normalization? Explain 2NF and 3NF with example showing record instances before and after applying normal form. (08 Marks)
  - b. Discuss with suitable example CREATE TABLE command in SQL. (08 Marks)
  - c. What are the different attribute data types and domains in SQL? (04 Marks)
  
- 7
  - a. What are views in SQL? What are the strategies to implement views in SQL? Explain. (06 Marks)
  - b. Discuss schema change statements in SQL. (06 Marks)
  - c. List out the inference rules for functional dependencies. (08 Marks)
  
- 8
  - Write short notes on:
    - a. PL / SQL
    - b. PROJECT Operation
    - c. CURSOR
    - d. SQL / PSM
    - e. Assertion and Triggers. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.