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Code No. : 31502

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (I.T.) III Year I-Semester (Main) Examinations, Nov./Dec.-2016

Database Management Systems

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. How is a candidate key different from a super key?
2. Describe weak entity type with an example.
3. What is the difference between DDL and DML Commands?
4. Describe Aggregate functions.
5. Write and explain syntax of foreign key constraint.
6. Differentiate ODBC and JDBC.
7. What is the difference between static hashing and dynamic hashing?
8. Demonstrate ACID properties.
9. Define granularity.
10. Define checkpoint. Where is it used?

Part-B (5 × 10 = 50 Marks)
(All bits carry equal marks)

11. a) Explain ER Model notations and design ER Model for Library Management System.
b) Draw and explain the architecture of DBMS.

12. a) Consider the following schema.

SAILORS (SID: INTEGER, SNAME: STRING, RATING: INTEGER, AGE: REAL)

BOATS (BID: INTEGER, BNAME: STRING, COLOR: STRING)

RESERVES (SID: INTEGER, BID: INTEGER, DAY: DATE)

Write the Queries in SQL for the following:

- i) List the names of sailors who have reserved at least one boat.
- ii) List the ages of sailors whose names begin and end with C and has at least four characters.
- iii) List the names of sailors who have reserved a blue or a yellow boat.
- iv) Find all information of sailors who have reserved boat number 101.
- v) Calculate the average age of all sailors.

- b) Consider the following schema.

SUPPLIERS (SID: INTEGER, SNAME: STRING, SADDRESS: STRING)

PARTS (PID: INTEGER, PNAME: STRING, COLOR: STRING)

CATALOG (SID: INTEGER, PID: INTEGER, COST: NUMBER)

Write the Queries using Relational Algebra Operations:

- i) List the names of suppliers who supply same blue parts
- ii) List the sids of suppliers who supply every red parts.
- iii) List the pids of parts that are supplied by at least two different suppliers.
- iv) List all the pids of parts supplied by supplier with sid = 200.
- v) List the pids of parts supplied by every supplier at less than Rs. 500.

13. a) Discuss about cursors, triggers and active database.
b) What is BCNF? What is the motivation for putting a relation in BCNF? What is the motivation for 3NF? In what way 3NF is different from BCNF.
14. a) Explain in detail about B+ tree index files.
b) Write short notes on serializability and recoverability.
15. a) Write short notes on Timestamp protocol.
b) Discuss about various database recovery techniques.
16. a) Differentiate Generalization and Specialization with examples.
b) Describe about complex queries, views and joined relations.
17. Write short notes on any *two* of the following:
 - a) Schema Decomposition and functional dependencies
 - b) Dense and Sparse Indices
 - c) What is the failure with loss of non-volatile storage?

