Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 27160

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Third/Fifth Semester

Computer Science and Engineering

CS 6302 — DATABASE MANAGEMENT SYSTEMS

(Common to B.Tech. Information Technology B.E. Mechanical and Automation Engineering B.E. Computer and Communication Engineering)

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the anomalies of 1NF.

2. Is it possible for several attributes to have the same domain? Illustrate your answer with suitable examples.

3. Differentiate static and dynamic SQL.

4. Why does SQL allow duplicate tuples in a table or in a query result?

5. What is meant by concurrency control?

6. Give an example of Two phase commit protocol.

7. Differentiate static and dynamic hashing.

8. Give an example of a join that is not a simple equi-join for which partitioned parallelism can be used.

9. List the types of privileges used in database access control.

10. Can we have more than one constructor in a class? If yes, explain the need for such a situation.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With help of a neat block diagram explain the basic architecture of a database management system. (8)

(ii) What are the advantages of having a centralized control of data? Illustrate your answer with suitable example. (8)

Or

(b) A Car rental company maintains a database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number license number, manufacturer, model, date of purchase and color. Special data are included for certain types of vehicles.

Trucks: Cargo capacity

Sports Cars: horsepower, renter age requirement

Vans: number of passengers

Off-road vehicles: ground clearance, drivetrain (four-or two-wheel drive)

Construct an ER model for the car rental company database.

12. (a) Describe the six clauses in the syntax of an SQL query, and show what type of constructs can be specified in each of the six clauses. Which of the six clauses are required and which are optional?

Or

(b) Assume the following table.

Degree (degcode, name, subject)

Candidate (seatno, degcode, name, semester, month, year, result)

Marks (seatno, degcode, semester, month, year, papcode, marks)

Degcode-degree code. Name-name of the degree (MSc. MCOM)

Subject — subject of the course Eg. Phy, Pap code — paper code eg. A1.

Solve the following queries using SQL

(i) Write a SELECT statement to display all the degree codes which are there in the candidate table but not present in degree table in the order of degcode. (4)

(ii) Write a SELECT statement to display the name of all the candidates who have got less than 40 marks in exactly 2 subjects.(4)

(iii) Write SELECT statement to display the name, subject and number of candidates for all degrees in which there are less than 5 candidates. (4)

(iv) Write a SELECT statement to display the names of all the candidates who have got highest total marks in MSc., (Maths). (4)

13. (a) (i) What is concurrency control? How is it implemented in DBMS? Illustrate with a suitable example.

(ii) Discuss view serializability and conflict serializability.

Or

(b) What is deadlock? How does it occur? How transactions be written to

(i) Avoid deadlock

(ii) Guarantee correct execution.

Illustrate with suitable example.

14. (a) (i) What is RAID? List the different levels in RAID technology and explain its features.

(ii) Illustrate indexing and hashing techniques with suitable examples.

Or

(b) Write short notes on

(i) Spatial and multimedia databases

(ii) Mobile and web databases.

15. (a) (i) Describe the GRANT functions and explain how it relates to security. What types of privileges may be granted? How rights could be revoked?

(ii) Write short notes on Data warehousing.

Or

(b) Suppose an Object oriented database had an object A, which references object B, which in turn references object C. Assume all objects are on disk initially? Suppose a program first dereferences A, then dereferences B by following the reference from A, and then finally dereferences C. Show the objects that are represented in memory after each dereference, along with their state.

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