G 2144 (Pages : 2) Reg. No.....4.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

DATABASE MANAGEMENT SYSTEM (R, T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours Maximum : 100 Marks

Answer **all** *the questions.*

Part A

1. Write a short note on the three schema architecture of Database system.
2. Mention the characteristics of Database system over traditional file processing system.
3. Explain the binary relational algebraic operators with an example for each.
4. Explain the concept of views in SQL.
5. Write a note on cost-based Query optimization.
6. Write an anonymous PL/SQL program to read a student record with roll number, name, m1, m2 and m3 and calculate the total, average and grade (pass/fail) and print the result onto the screen.
7. Explain how data integrity is ensured is a Database management system.
8. Describe how anomalies could be eliminated during normalization.
9. Explain the various transparencies in distributed Database.
10. Compare the primary site method with the primary copy method for concurrency control. How does the use of backup sites affect each ?

(10 × 4 = 40 marks)

Part B

11. (a) Explain with a neat sketch the architecture of the following data models :–

(i) Hierarchical (ii) Network.

Or

(b) Construct an ER diagram of the book club. The book club has members. The book club sells books to its members. The members places orders for books, which the book club fulfills. Each order contains one or more than one book. Authors write the books. The publisher publishes the book. An author can write more than one book and a book can have more than one author. A book is published by a publisher, but a publisher publishes many books. (Include attributes, cardinality, participation and weak entities if any).

Turn over

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

Or

(b) (i) In what sense does relational calculus differ from relational algebra, end is what sens are they similar ?

(5 marks)

(ii) Discuss the meanings of the existential quantifier ($\exists$) and the universal quartifier ($\forall$) with examples.

(7 marks)

13. (a) Explain the need for concurrency control and recovery in transaction processing.

Or

(b) Classify the business rules available is Oracle and illustrate with an example for each.

14. (a) What is functional dependency ? Discuss the three Armstrong's inference rules.

Or

(b) (i) Define lNF, 2NF and 3NF. (5 marks)

(ii) Define BCNF. How does it differ from 3NF ? Why is it considered a stronger form of 3NF.

(7 marks)

15. (a) What are the advantages of DDBMS over centralized DB system ? Explain.

Or

(b) Write notes on :

(i) Distributed Query processing using semi-join. (6 marks)

(ii) Data Fragmentation. (6 marks)

[5 × 12 = 60 marks]