E 8221

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

First Semester

CA 133 — DATABASE MANAGEMENT SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Explain the differences between physical and logical data independence.

2. What are the different groups of data model?

3. What are triggers? What are the conditions to be followed when you design a trigger?

4. List any two reasons why null values may be introduced into the database?

5. What are the different ways of organizing records in a file?

6. Mention any two disadvantages of the index sequential file organization.

7. What is view? What are the advantages of creating views?

8. Define query optimization. What is the purpose of query optimizer?

9. Write different states of the transactions.

10. What are two types of errors that may cause a transaction to fail? Explain each of them.

PART B — ($5 \times 16 = 80$ marks)

11. (i) What do you mean by join dependency? Write short note about PJNF. (6)

(ii) Compare BCNF and 3NF. (5)

(iii) Explain why 4NF is more is desirable than is BCNF. (5)

12. (a) (i) Explain the overall system structure of DBMS. (10)

(ii) Draw an E-R model for student information system. (6)

Or

(b) Design a generalization – specialization hierarchy for a motor vehicles sales company. The company sells motor cycles, passenger cars, vans and buses. Justify your placement of attributes at each level of the hierarchy. Explain why they should not be placed at a higher or lower level.

13. (a) Explain the organization of records in files in details with suitable examples. (16)

Or

(b) Explain the structure of B^+ Tree Index file in detail with suitable examples. (16)

14. (a) (i) Explain about various keys used in relational model. (8)

(ii) Give one example for trigger operation. (8)

Or

(b) Write queries for data definition and data manipulation. (16)

15. (a) Show that the two-phase locking protocol ensures conflict serializability, and the transaction can be serialized according to their lock points. (16)

Or

(b) List the ACID properties. Explain the usefulness of each with suitable example. (16)
