

C 27577

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SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2003

IT2K 602/CS 2K 602—DATABASE MANAGEMENT SYSTEMS

Time : Three Hours

Maximum : 100 Marks

Question No 1 is compulsory.

Answer one full question from each of 2 to 5.

1. (a) Define the following terms : Foreign key, Database schema, program-data independence, Meta data, Domain of an attribute. ^{Note} _{Note} 8
- (b) What is the difference between spanned and unspanned records ? Give the condition when we have to go for spanned records to store records in block of disk. 131.
- (c) Describe the role of DBA in DBMS. 12
- (d) List and explain the necessity of having different buffers for executing user query.
- (e) What do you mean by spurious tuples ? Explain by taking suitable example.
- (f) With an example explain why concurrency control is needed in multi-user database system? 633
- (g) Describe the term MVD in the context of relational database management system by giving an example. 514
- (h) Write the algorithm for X^+ (X - closure). _{mis note}
2. (a) (i) Explain the importance of data modelling in view of DBS. (8 × 5 = 40 marks)
- (ii) Discuss the main characteristics of DBS over traditional file processing system. (7 marks)
- (8 marks)

Or

- (b) A database is to be designed for an organisation to monitor its activity. The organization consists of a number of departments. Each department has employees working for it. No employee can work for more than one department. Each department uses parts in certain quantities. Each department also maintains the information about the suppliers of parts. Each department is identified by its number and has budget and a place of operation. Employees are identified by its number and have a salary and designation. Construct the ER diagram for above problem description. Assume reasonable relationship between concepts in real world.

3. (a) (i) List the operations of the relational algebra and the purpose of each. (15 marks)
- (ii) Write short note on RAID technology. 124 (8 marks)
- (7 marks)

Or

- (b) (i) What are the advantages and disadvantages of B tree as an access structure over Bt tree ? Explain.

(7 marks)

Turn over

- (ii) Compare secondary indexing with primary and cluster indexing. Explain with situation when each of these indexing methods are more appropriate.

(8 marks)

- 1 (a) (i) Explain how shrinking and expansion of access structure takes place in extendible hashing.

(7 marks)

- (ii) What is functional dependency? Explain with example. In what way they are different than inclusion dependencies?

(8 marks)

Or

- (b) How a given ER diagram can be converted into relations? Explain by taking suitable example.

(15 marks)

- 5 (a) (i) Write the algorithm to get the relation in 3NF.

(7 marks)

- (ii) "Most of the DBMSs support a programming language". Why? Can database be queried using these languages? Explain with the help of an example.

(8 marks)

Or

- (b) Write short notes on :

(i) Dynamic SQL.

(ii) Views in SQL.

(15 marks)

[4 × 15 = 60 marks]