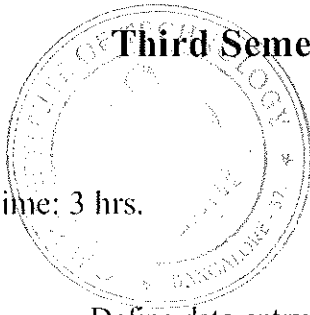


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13MCA352



Third Semester MCA Degree Examination, June/July 2016

Advanced Topics in DBMS

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Define data entry. List out the three main alternatives to store data entry as an index. (05 Marks)
b. Differentiate between clustered and unclustered index. (05 Marks)
c. Explain the trade-offs between reliability and performance in different RAID organizations. (10 Marks)
- 2 a. Discuss the desirable properties of a transaction. (04 Marks)
b. With examples, demonstrate the anomalies due to interleaved execution of transactions. (08 Marks)
c. Explain Timestamps and show the working of any two deadlock prevention protocols using timestamp on transactions. (08 Marks)
- 3 a. Define ISAM. Explain its structure and analyze it with B+ tree. (10 Marks)
b. Construct a B+ tree of degree 3 for the following data:
45, 39, 97, 92, 56, 63
and show the steps when 39, 63 and 56 are deleted from the above constructed tree. (10 Marks)
- 4 a. Differentiate between static and linear hashing with example. (10 Marks)
b. Show with an example how extendible hashing uses directory of buckets. Under what conditions does the directory get large? (10 Marks)
- 5 a. What is meta data? What meta data is stored in system catalog? (05 Marks)
b. Discuss the three commonly used techniques used in algorithms to evaluate relational operators. (05 Marks)
c. Give the alternative plans for the query below and discuss which is the best plan:
SELECT S.name FROM Reserves R, Sailors S WHERE R.sid = S.sid AND R.bid = 100 AND S.rating 75. (10 Marks)
- 6 a. With a neat block diagram, explain projection based on hashing. (10 Marks)
b. Discuss the sort-merge join algorithm. (10 Marks)
- 7 a. Define the term reduction factor. What are the two parts to estimate the cost of a query plan? (06 Marks)
b. What are histograms? Explain the different kinds of histograms. (06 Marks)
c. When are two relational algebra expressions considered equivalent? Explain important equivalences involved in selection and joins. (08 Marks)
- 8 a. Explain the decisions made during physical database design and tuning. (05 Marks)
b. Explain any two DBMS Benchmarks. (05 Marks)
c. Illustrate the general architecture of a mobile platform and discuss its architecture and characteristics. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.