1129
M.E. (Computer Science and Engineering)
First Semester
CS-8102: Advanced Database

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt* *five* *questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

   a) What is logical data independence and why is it important?

   b) What are the conditions that lead to the two schedules being view equivalent?

   c) List the additional functionalities provided by DDBMS over a centralized DBMS.

   d) What do you understand by cascading rollback? What type of schedules avoid cascading rollback?

   e) Mention two languages used for querying XML data. (5x2)

UNIT – I

II. a) Explain the entity integrity and referential integrity constraints. Why is each considered important?

   b) How can data availability be improved in distributed databases?

   c) How is intra-operation parallelism different from inter-operation parallelism? (4,3,3)

III. a) Elaborate the concept of shared-exclusive locks. Why are these locks referred over binary locks?

   b) Discuss optimistic concurrency control technique along with its different phases. How is minimum overhead reached? (5,5)

IV. a) What are persistent objects? How is persistence handled in Object Oriented database systems?

   b) What is the function of ODL in ODMG standard?

   c) Describe the following OQL concepts with example: database entry points and path expressions. (4,3,3)

P.T.O.

UNIT – II

V. a) What is the need of system log during recovery? Differentiate between REDO-type log entries and UNDO-type log entries?

b) Describe the shadow paging recovery technique. Why is it categorized as NO-UNDO/NO-REDO technique?

(5,5)

VI. a) How do spatial databases differ from regular databases? Discuss the different categories of spatial queries.

b) What is the typical syntactic structure of a XML DTD document? Highlight the various notations used for specifying elements.

(5,5)

VII. a) What is a data warehouse? Highlight the major features of data warehouse.

b) State the differences between OLTP and OLAP.

(5,5)

x-x-x