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Question Paper Code: 31835

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Third Semester

Information Technology

01UIT305 - DATABASE SYSTEMS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Recall the terms (i) DDL (ii) DML.
2. Classify the categories of data model.
3. Define embedded SQL and its advantages.
4. Give an example for foreign key.
5. Identify a functional dependency that violates BCNF.
6. Define Armstrong's axioms.
7. Differentiate immediate update and deferred update recovery.
8. State ACID property.
9. Classify the ways of organizing records in files.
10. Define query processing and list the steps involved in query processing.

PART - B (5 x 16 = 80 Marks)

11. (a) Illustrate the DBMS architecture with suitable diagram and also summarize about database users and administrators. (16)

Or

- (b) Explain about ER-model and design a database schema for airline reservation system. (16)

12. (a) Exemplify Tuple relational calculus and Domain relational calculus. (16)

Or

- (b) (i) Explain the use of the trigger with an example. (8)

- (ii) How do you grant and revoke the privileges to the tables in a database? (8)

13. (a) Recall the term normal forms. Elaborate various types of normal forms. (16)

Or

- (b) Summarize functional dependencies. Consider the universal relation $R = \{A, B, C, D, E, F, G, H, I\}$ and the set of functional dependencies $F = \{(A, B) \rightarrow \{C\}, \{A\} \rightarrow \{D, E\}, \{B\} \rightarrow \{F\}, \{F\} \rightarrow \{G, H\}, \{D\} \rightarrow \{I, J\}$. Identify the key to decompose R into 2NF, the 3NF relations? (16)

14. (a) Exemplify concurrency control and justify how we can achieve concurrency control in DBMS through Serializability. (16)

Or

- (b) Show the use of log based recovery and shadow paging. (16)

15. (a) Explain the structure of B⁺- tree and analyze the file organization using B⁺- tree. (16)

Or

- (b) Elucidate RAID and its various levels. (16)