Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 6212497

M.C.A. DEGREE EXAMINATIONS, NOV/ DEC 2024
Second Semester
Master of Computer Application
P23CAT21 – ADVANCED DATABASE TECHNOLOGY
(Regulation 2023)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. List the types of distributed database architectures.

2. Summarize the components of distributed query processing.

3. Consider the employee table having age column. Write a query for before insert trigger that sets the age to 0 if it's less than 0.

4. Define Attribute Versioning.

5. What is the CAP theorem? Explain its components.

6. Define a keyspace in Cassandra.

7. Identify three types of XML documents.

8. Compare Structured, Semi-structured and Unstructured data.

9. What are the two main types of IR systems?

10. Interpret the role of tokenization in text processing.

PART – B (5 x 16 = 80 Marks)

11. (a) Illustrate the commit protocols used in distributed transactions and their significance. (16)

(OR)

(b) Explain in detail about Distributed Concurrency Control based on. (16)
(i) Distinguished copy of a Data item
(ii) Distributed Concurrency Control based on Voting.

12. (a) Interpret the design and implementation issues in active databases. (16)

(OR)

(b) Explain about location and handoff management in Mobile databases. (16)

13. (a) Summarize about MongoDB Data model and explain various MongoDB operations. (16)

(OR)

(b) Infer Hive database operations and discuss the importance of partitioning and data types in Hive. (16)

14. (a) Consider the bibliography DTD fragment: (16)

<!DOCTYPE bibliography [
<!ELEMENT book (title, author+, year, publisher, place?)> <!ELEMENT article (title, author+, journal, year, number, volume, pages?)>
<!ELEMENT author (last name, first name) >
<!ELEMENT title (#PCDATA)>
··· similar PCDATA declarations for year, publisher, place, journal, year, number, volume, pages, last name and first name
] >

Write the following queries in XQuery:

a. Find all authors who have authored a book and an article in the same year.
b. Display books and articles sorted by year.
c. Display books with more than one author.
d. Find all books that contain the word database in their title and the word Hank in an author's name (whether first or last).

(OR)

(b) Give XML representation of bank management system and also explain about Document Type Definition and XML schema. (16)

15. (a) Illustrate how a Retrieval Model evaluates the relevance of a document for a given query. Examine with reference to different models. (16)

(OR)

(b) Suppose you wish to perform keyword querying on a set of tuples in a database, where each tuple has only a few attributes, each containing only a few words. Does the concept of term frequency make sense in this context? And that of inverse document frequency? Explain your answer. (16)

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