CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

20SCS13

First Semester M.Tech. Degree Examination, Jan./Feb. 2023
Advanced Database Management Systems

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

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.

Module-1

1 a. Discuss on the characteristics of relations that make it different from a file or a table. **(10 Marks)**

b. Explain the 3 basic constructs used in ODBs with an example object specified using type constructors. **(10 Marks)**

OR

2 a. Demonstrate how constraints will be violated during a database modification operation. **(10 Marks)**

b. Mention the steps for mapping an EER schema to an ODB schema. **(10 Marks)**

Module-2

3 a. List and explain some of the commonly used techniques to make accessing data more efficiently on HDDs. **(10 Marks)**

b. What are the advantages of distributed databases? Explain the different data fragmentations done in distributed databases. **(10 Marks)**

OR

4 a. Describe the different hashing techniques that allow dynamic file expansion. **(10 Marks)**

b. With neat diagrams, compare and contrast generic schema architecture of distributed databases and federated databases schema architecture. **(10 Marks)**

Module-3

5 a. What are the characteristics of NOSQL systems? Explain. **(10 Marks)**

b. With the help of basic execution workflow of MapReduce, explain the map and reduce operations. **(10 Marks)**

OR

6 a. Describe about Replication and Sharding in MangoDB. **(10 Marks)**

b. Explain about the architecture of HDFS along with its highlights. **(10 Marks)**

Module-4

7 a. Explain the concept of spatial data indexing along with the spatial indexing techniques used. **(10 Marks)**

b. Explain any five types of queries in IR systems. **(10 Marks)**

OR

8 a. Consider the supervisory tree below and write the prolog notation for the same with facts, rules and queries :

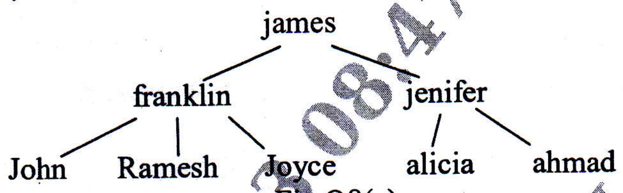

Fig.Q8(a) **(10 Marks)**

b. Given a set of query terms, explain how searching for relevant documents is done from the inverted index. **(10 Marks)**

Module-5

9 a. Write and explain with an example the apriori algorithm for finding frequent (large) itemsets. **(10 Marks)**

b. With the general architecture of a data warehouse, explain the characteristics of data warehouse. **(10 Marks)**

OR

10 a. Write and explain with an example, the algorithm for Decision Tree Induction. **(10 Marks)**

b. Explain the steps involved in acquisition of data for the data warehouse. **(10 Marks)**

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