A–837

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MCS-505/MIT (CS)-402

MCA/MSCIT/MSCCS

(Database Management System/Introduction to DBMS)

2nd/4th Semester Examination, 2024 (June)

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

(Long Answer Type Questions) 2×19=38

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Explain all the aggregate functions. How are these functions used in query statements ?

2. Explain all the CODD's rule with suitable example.

3. Discuss the principles of the CIA triad (Confidentiality, Integrity, and Availability) in the context of database security. How does each principle contribute to a secure database environment ?

4. Discuss the steps involved in the recovery process, including analysis, redo, and undo phases. How does each phase contribute to bringing the database back to a consistent state ?

5. Explain all the database representation model with suitable example.

Section–B

(Short Answer Type Questions) 4×8=32

***Note* :–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Explain the concept of data independence in the context of DBMS. How does it differ from application independence ?
2. Examine the concept of specialization and generalization in the ER model. How are they used to represent different types of entities in a hierarchy ?
3. Discuss the challenges and considerations in normalizing large databases. How can normalization principles in scenarios with a significant volume of data ?
4. Discuss the differences between SQL and NoSQL databases. What are the advantages and disadvantages of each, and in what scenarios might you choose one over the other ?
5. Explain all the SQL data types with example.
6. Discuss and differentiate between client Server, parallel and distributed database.
7. What are the elements of DBMS ?
8. Explain the three-tier architecture of DBMS with suitable diagram.

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