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MCS-043

**MASTER OF COMPUTER
APPLICATIONS (MCA) (REVISED)**

Term-End Examination

June, 2023

**MCS-043 : ADVANCED DATABASE
MANAGEMENT SYSTEMS**

Time : 3 Hours

Maximum Marks : 100

Note : *Question Number 1 is compulsory. Answer
any **three** questions from the rest.*

1. (a) What are semantic databases ? Write features of semantic databases. Discuss the process of searching the knowledge in semantic databases. 5

- (b) Differentiate between clustering and classification techniques. List any *one* algorithm under each technique. 5

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- (c) What is Association Rule Mining ? Write Apriori Algorithm for finding the frequent itemsets. 5
- (d) Create an XML document that stores information about the employees of a company. The document should use appropriate tags/attributes to store the information. Create at least *two* records for employees. 5
- (e) What are multimedia databases ? Discuss the features and challenges of multimedia database. 5
- (f) What are Deadlocks ? How are deadlocks detected ? Explain with suitable example. 5
- (g) What is Hash join ? Explain how Hash join is applicable to Equijoin and Natural join. 5
- (h) Differentiate between database queries and data mining queries. Give example for each. 5

2. (a) Explain each of the following, with suitable code of your choice (Also, give utility of each) : 12
- (i) Alerts
 - (ii) Cursors
 - (iii) Stored Procedures
 - (iv) Triggers
- (b) What is Simple Hash join ? Discuss the algorithm and cost calculation process for Simple Hash join. 8
3. (a) What is Data Dictionary ? Write features of data dictionary. Also, give advantages and disadvantages of Data Dictionary. 10
- (b) What are mobile databases ? Explain the characteristics of mobile databases. Also give an application of mobile databases. 5
- (c) Briefly discuss PJNF. How does it relate to Join dependencies ? 5
4. (a) Differentiate between the following : 10
- (i) Data mart and Data warehouse
 - (ii) Homogeneous and Heterogeneous distributed databases

- (b) Write and discuss all the steps involved in database application life cycle. 10
5. (a) What is Log Record Buffering ? Write the rules that must be followed, if log records are buffered. 5
- (b) Explain the various components of the reference architecture of Distributed DBMS. Support your explanation with a suitable block diagram. 15