

**M. C. A. (REVISED)**  
**Term-End Examination**  
**December, 2019**

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

*Time : 3 Hours*

*Maximum Marks : 100*

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*Note : Question number 1 is compulsory. Attempt  
any three questions from the rest.*

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1. (a) What are triggers ? What is the utility of triggers in DBMS ? Explain with the help of an example. 5
- (b) Discuss data mining in the context of knowledge discovery in databases. 5
- (c) What are mobile databases ? Give characteristics of mobile databases. 5
- (d) What is shadow paging ? Give advantages and disadvantages of shadow paging. 5

- (e) Differentiate between logical database design and physical database design. 5
- (f) How hash join is applicable to Equi Join and Natural Join ? 5
- (g) What is an ETL process ? Describe the different transformations performed during ETL process. 5
- (h) Compare Assertions and Views. Discuss each with a suitable example. 5
2. (a) Differentiate between the following : 10
- (i) Centralized 2 PL and Distributed 2 PL
  - (ii) XML and HTML
  - (iii) Inclusion dependencies and Template dependencies
  - (iv) Spatial databases and temporal databases
- (b) What do you understand by the term "Multiversioning" ? What are the various schemes available for multiversioning ? Explain any *two* schemes. 10

3. (a) What is Join Dependency ? How join dependency relates to SNF ? 5
- (b) What is a Datagrid ? Give a block diagram to describe the structure of datagrid. What is the utility of datagrid ? 5
- (c) What is a serializable schedule ? How does serializable schedule differ from a serial schedule ? What are the problems, associated with both schedules ? Explain the time stamp based protocols for serializable schedule. 10
4. (a) Why Database query expressed in relational algebra is preferred over the query expressed in SQL ? Explain with suitable example. 5
- (b) What are the common database security failures ? Give SQL commands, to grant permission for database access. Why statistical databases are more prone to security breach ? Explain with the help of an example. 7

- (c) What is OLAP ? Discuss the different implementations of OLAP. 4
- (d) Discuss the different types of structural diagrams in UML. 4
5. (a) Explain Centralized two-phase commit protocol in Distributed Environment. Give the algorithm for both coordinator and participants. 10
- (b) Write short notes on the following : 10
- (i) OLTP
  - (ii) Embedded SQL
  - (iii) Dynamic SQL
  - (iv) Clustering approaches
  - (v) Semantic databases