

17-12-2019

Roll No. ....

Total Pages : 4

MCA/D-19

10018

**DATABASE MANAGEMENT SYSTEMS**

Paper-MCA-14-34

Time Allowed : 3 Hours]

[Maximum Marks : 80

**Note:** (i) Question Number **one** is compulsory.

(ii) In addition to compulsory question, students have to attempt **four** more questions selecting **one** question from each Unit.

**Compulsory Question**

1. Differentiate between the following—

(a) Before Image and After Image.

(b) Atomicity and Isolation property.

(c) BCNF and 3NF:

(d) F.D., MVD and JD.

(e) Base relation and view.

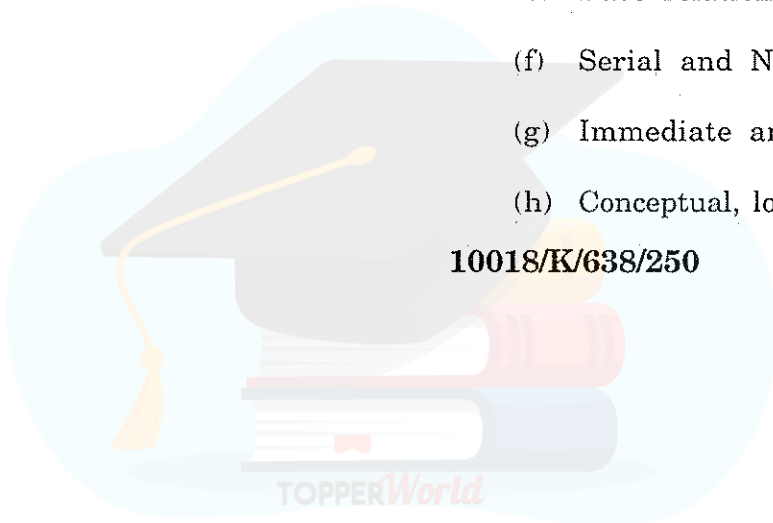
(f) Serial and Non-serial Schedule.

(g) Immediate and Deferred Update.

(h) Conceptual, logical and Internal Scheme. 2×8=16

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## UNIT-I

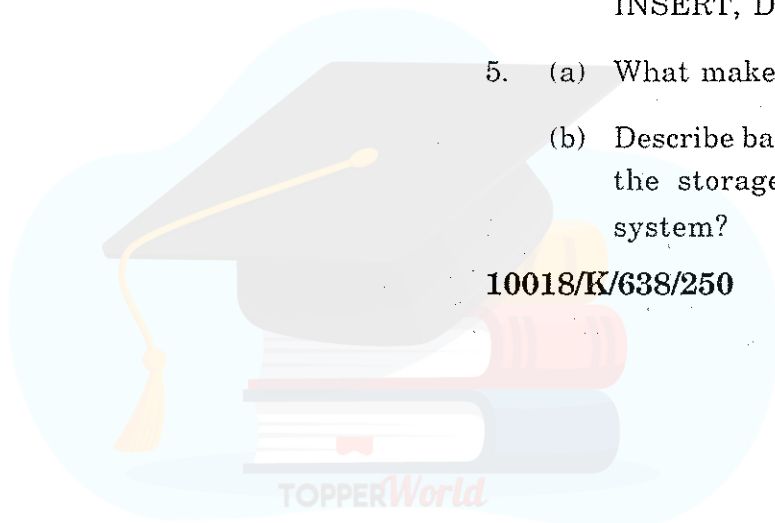
2. Explain ANSI-SPARC architecture of DBMS. Also discuss how this architecture helps to achieve the following—
- (a) Logical Data Independence
  - (b) Physical Data Independence 16
3. (a) Explain the term 'Database Consistency? How do you ensure. Consistency in data bases? What makes database inconsistent? 6
- (b) Explain why navigation is simpler in relational model than in any other data model. 6
  - (c) Draw ER diagram showing accounting transaction in a bank. 4

## UNIT-II

4. (a) Trace the history and technological developments of SQL. 8
- (b) Describe various SQL statements that can be used for the following operations:  
INSERT, DELETE and UPDATE. 8
5. (a) What makes a DBMS RDBMS? Discuss. 6
- (b) Describe basic structure of ORACLE system. How the storage is organized in ORACLE/MYSQL system? 10

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### UNIT-III

6. (a) Discuss the importance of functional dependencies in database design. Why can we not infer a functional dependency from a particular relation state? 6
- (b) Define Primary key in terms of functional dependencies. 4
- (c) Discuss the role of Information Systems in Organizations. 6
7. (a) What is the criteria for a good database design? 5
- (b) Explain the desirable properties of decomposition. 3
- (c) Define Boyce-Codd normal form. How does it differ from third normal form (3NF)? 5
- (d) When a relation is in 3NF but fails to meet the requirements of BCNF? 3

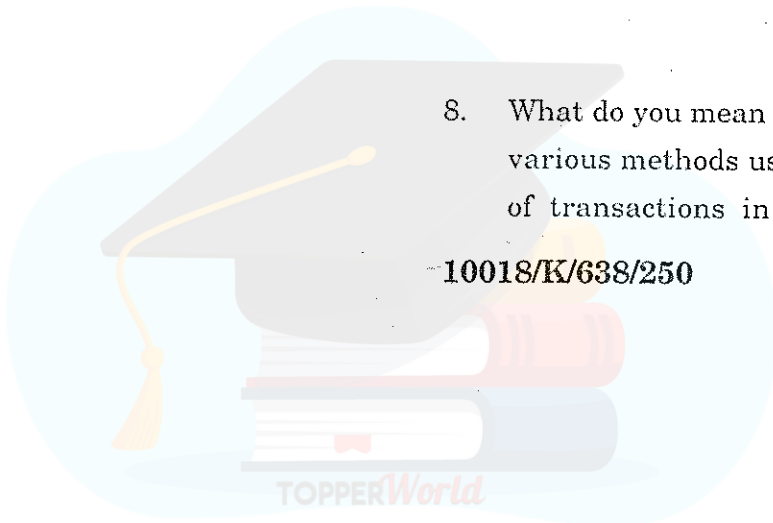
### UNIT-IV

8. What do you mean by 'Concurrent Processing?' Explain various methods used to control concurrent processing of transactions in a multi-user environment. 16

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9. (a) How does recovery manager ensure atomicity and durability properties of transactions? 4
- (b) What are checkpoints? How does checkpointing help in recovery? 8
- (c) Discuss the limitations of log files. 4

