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**[4966]-2005**

**M.C.A. (Commerce faculty) (Second Semester) EXAMINATION, 2016**

**205 : DATABASE MANAGEMENT SYSTEM**

**(Credit System)**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 50**

**N.B. :—** (i) Neat diagrams must be drawn wherever necessary.

(ii) Figures to the right indicate full marks.

(iii) Assume suitable data, if necessary.

(iv) All questions are compulsory.

**1. (a)** Attempt any *three* :

[3×2=6]

(i) List any four applications of DBMS.

(ii) Give basic structure of SQL queries.

(iii) Define attribute.

(iv) What is serializable schedule ?

(b) An insurance agent sells insurance policies to clients. Policies can be of different types such as vehicle insurance, life insurance and accident insurance etc. The agent collects monthly premiums on the policies in the form of cheques of local banks.

From a given case study list out entities, attributes primary keys & relationship. Draw an ER diagram for the same. [8]

P.T.O.

2. Attempt any *three* : [3×4=12]

- (a) Explain concept of normalization in detail.
- (b) What is transaction ? Explain states of transaction with the help of suitable diagram.
- (c) Explain multiple Granularity.
- (d) Write a note on failure classification.

3. (a) Consider the following relations and solve any *two* queries in relational algebra. [2×2=4]

Machine (mno, mname, mtype, mcost)

Part (Pno, Pname, Pdesc, mno)

- (i) List names of all machines and their type having cost greater than 1000.
  - (ii) List all the parts of 'Television' Machine.
  - (iii) Display the names of all machines having parts 'wheel' and cost > 5000.
- (b) Consider the following relations and solve any *four* queries in SQL. [4×2=8]

Party (Partycode, Partyname)

Politician (Pno, Pname, Pdesc, partycode)

- (i) Create table query for party table by adding primary key constraint and party name should be not null.
- (ii) Add constituency attribute in politician table.
- (iii) List partywise details of politicians.

(iv) Count no. of politicians having political description as a 'member of parliament.'

(v) List all politicians of the party given.

4. Attempt any *three* : [3×4=12]

(a) Write a note on Integrity constraints.

(b) Write a note on views of Data.

(c) Consider the following transactions. Give *two* non-serial schedules that are serializable :

<b>T<sub>1</sub></b>	<b>T<sub>2</sub></b>
Read (A)	Read (A)
A = A + 10	A = A - 10
Write (A)	Write (A)
Read (B)	Read (B)
Read (C)	B = B - 20
B = B + 20	Write (B)
Write (B)	
C = C + 30	
Write (C)	

(d) The following are the log entries at the time of system crash :

[Start—transaction, T<sub>1</sub>]

[Write—item, T<sub>1</sub>, A, 250, 300]

[Commit, T<sub>1</sub>]

[Start-transaction, T<sub>3</sub>]

[Write-item, T<sub>3</sub>, B, 450, 100]

[Write-item, T<sub>3</sub>, C, 300, 120]

[Commit, T<sub>3</sub>]

[Checkpoint]

[Start-Transaction, T<sub>2</sub>]

[Write-item, T<sub>2</sub>, D, 250, 350]

[Start-Transaction, T<sub>4</sub>]

[Write-item, T<sub>4</sub>, E, 200, 100] ← System crash

If immediate update with checkpoint is used, what will be the recovery procedure ?