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4 SEM TDC CAP G 1

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(May)

COMPUTER APPLICATION

(General)

Course : 401 .

(Database Management System)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

Answer Question Nos. **1** and **2**, and
any five from the rest

1. Choose the correct option : 1×6=6

(a) What separates the physical aspects of
data storage from the logical aspects of
data representation?

- (i) Data
- (ii) Relationship
- (iii) Constraint
- (iv) Schema

(2)

(b) Which of the following is an attribute that holds multiple values for a single entity?

- (i) Single
- (ii) Multivalued
- (iii) Composite
- (iv) Derived

(c) The process of increasing redundancy in the database either for convenience or to improve performance is known as

- (i) multivalued dependency
- (ii) denormalization
- (iii) normalization
- (iv) functional dependency

(d) Which of the following is not a recovery technique?

- (i) Deferred update
- (ii) Immediate update
- (iii) Shadow paging
- (iv) Write-ahead logging

(3)

(e) The data that is designed to be a part of geographic information system (GIS) can be stored in a — database.

- (i) temporal
- (ii) multimedia
- (iii) spatial
- (iv) web

(f) Which module of a DBMS is responsible for the transfer of data between main memory and secondary storage?

- (i) Buffer manager
- (ii) Schedule manager
- (iii) Recovery manager
- (iv) Database manager

2. Answer the following :

2×6=12

- (a) Give two advantages of using a DBMS.
- (b) Distinguish between a primary key and a foreign key.
- (c) Define functional dependency with an example.
- (d) Write two main causes of failure in a DBMS.
- (e) State two characteristics of an OODBMS.
- (f) Write the main differences between network model and hierarchical model.

3. Answer any *five* of the following :

- (a) Discuss various functions of a DBMS.
- (b) Draw an E-R diagram for a college which offers the general degree courses. Students can take admission into any one course by paying a prescribed fee. The college also provides various recreation activities such as sports, arts, NCC, etc., which any student is entitled to select.
- (c) Explain various normal forms.
- (d) Define shadow paging and 2PC techniques of database recovery. 2PC 3+3
- (e) Distinguish between homogeneous and heterogeneous distributed databases. How is transparency achieved in distributed databases? 4+2
- (f) What is a DBA? What are various functions of a DBA? 2+4
- (g) Write short notes on any *two* of the following : 3×2
 - (i) Database users
 - (ii) Relational model
 - (iii) Parallel database

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