

**ADVANCED DIPLOMA IN INFORMATION
TECHNOLOGY (ADIT) / BACHELOR IN
INFORMATION (BIT)**

Term-End Examination

December, 2011

00990

**CST-203 : RELATIONAL DATABASE
MANAGEMENT SYSTEMS**

Time : 2 hours

Maximum Marks : 50

Note : *There are two sections in this paper. SECTION - A consists of objective type questions and short answers type questions . All questions in SECTIONS - A are compulsory .SECTION - A carries 26 marks. SECTION-B consists of three question. Attempt any two questions from SECTION B. SECTION B carries 24 marks.*

SECTION- A

There are 10 objective type questions is this question.

1. There are four choices for each objective question, select the best choice as your answer. If none of the given choices is correct then mark O as your answer. Each question carries 1 mark. **10x1=10**

(a) Domain defines the type of value that can be taken by a/an :

- (i) attribute (ii) Tuple
(iii) Entity (iv) Relation

- (b) The Participation of a weak entity in a relationship between a weak entity and a strong entity is :
 - (i) partial
 - (ii) total
 - (iii) depends on entity set
 - (iv) determined a by strong entity
- (c) Which of the following file organisation is most suitable for random access on a key :
 - (i) Sequential
 - (ii) Indexed sequential
 - (iii) Relative
 - (iv) None of the above
- (d) Which of the following is problem of an un normalised relation :
 - (i) Update anomalies
 - (ii) Insertion anomalies
 - (iii) Deletion anomalies
 - (iv) Rodudent anomalies
- (e) To find the number of tuples in a relation you may use :
 - (i) Group By clause
 - (ii) Having clause
 - (iii) Count (A)
 - (iv) All of the above.

- (f) lock information is maintained by :
- (i) Lock controller
 - (ii) Lock system
 - (iii) Lock Manger
 - (iv) Lock admin
- (g) A Serialisable schedule is :
- (i) a serial schedule
 - (ii) a parallel schedule
 - (iii) a parallel schedule equivalent to a serial schedule
 - (iv) a serial schedule converted to a equivalent parallel schedule.
- (h) Forward recovery may be performed using_____ operation.
- (i) UNDO
 - (ii) REDO
 - (iii) UNDO & REDO both
 - (iv) None of the above
- (i) The statistics of database like number of athributes , number of tuples , etc are stored in a :
- (i) D D L Compiler
 - (ii) Date manager
 - (iii) File Manager
 - (iv) Data dictionary.

- (j) Which of the following is a valid control operation that allows user to delete relations :

(i) DROP (ii) DELETE
(iii) ALTER (iv) ALL

2. (a) Consider an organisation has part - time and full-time employees. Any employee of the organisation works for a department. Each department have at least one project . Draw the E - R diagram for the description given above. Explain reasons for solution of entities and attributes 5
- (b) Consider the relation whose one table instance is given below : 9

Order No	Item Code	Date of Order	Quantity Ordered	Price Perunit
1	I ₁	25/7/11	20	50
1	I ₂	25/7/11	30	25
2	I ₁	26/7/11	40	50
2	I ₂	26/7/11	50	25

- (i) Find the key (s) of the table.
- (ii) Indentify and list the functional dependencies.
- (iii) Normalise the relation into 2NF and then 3NF.
- (c) What is dirty read in the context of concurrent transaction ? 2

SECTION - B

There are three questions in this section. Attempt *any two*. This section carries 24 marks. Please give to the point answer.

3. (a) What are primary and clustering indexes ? 6
How are they different from each other ?
Describe the purpose of a dense secondary index.
- (b) Consider the following two transaction 6
- (i) Add 10 to x.
- (ii) Add the content of X into Y and display Y.

Write the Pseudocodes of the transaction using shared and exclusive locks. Show a serial schedule of these transactions.

4. (a) Explain the following relational algebraic 8
operations with the help of an example :
- (i) Cartesian product
- (ii) Division
- (iii) Selection and Projection
- (iv) Join
- (b) What is a log ? How is it used in recovery ? 4
Explain with the help of an example.

5. Explain the following with the help of an example /diagram if needed : 12

- (i) Referential Integrity constraint
 - (ii) Authorisation in a database
 - (iii) Data manipulation language
 - (iv) Conceptual schema.
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