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Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2018
IT3CO05 Database Management System

Programme: B.Tech.

Branch/Specialisation: IT

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1
- i. Arranging customer names in ascending order is an example of **1**
(a) Process (b) Information processing
(c) Data (d) Flexing
 - ii. Which of the following can be a multi-valued attribute **1**
(a) Hobby (b) Name
(c) Date of birth (d) All of these
 - iii. Relation in relational database refers to **1**
(a) Relationship between entities
(b) Table having records
(c) Attribute
(d) Tuple
 - iv. Which of the following is not a DDL command? **1**
(a) Alter (b) Update (c) Truncate (d) None of these
 - v. A relation is in first normal form if we remove **1**
(a) Multivalued dependency (b) Partial dependency
(c) Composite attribute (d) Multivalued attribute
 - vi. A set of possible value should be associated with an attribute **1**
refers to
(a) Referential integrity constraint
(b) Integrity constraint
(c) Domain constraint
(d) All of these

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- vii. In case of any shut down during transaction before commit which of the following statement is done automatically? **1**
(a) Rollback (b) Commit (c) Revert (d) View
- viii. A transaction may not always complete its execution successfully. Such a transaction is termed **1**
(a) Terminated (b) Pre-closed (c) Aborted (d) Closed
- ix. Location transparency allows for which of the following? **1**
(a) Users to treat the data as if it is at one location
(b) Programmers to treat the data as if it is at one location
(c) Managers to treat the data as if it is at one location
(d) All of these
- x. Storing a separate copy of the database at multiple locations is which of the following? **1**
(a) Data replication (b) Horizontal partitioning
(c) Vertical partitioning (d) Divided partitioning
- Q.2 i. Differentiate data and information. **2**
ii. Outline the internal system structure of DBMS. **8**
- OR iii. List advantages of DBMS over file processing system. **8**
- Q.3 i. What is union compatibility? What are the relational algebra operators that require the relations to be union compatible? **3**
ii. Write any seven rules of E-F Codd for RDBMS. **7**
- OR iii. Correlate relational algebra and relational calculus by giving suitable example. **7**
- Q.4 i. Justify the need of normalization in database development. **4**
ii. Explain entity integrity and referential integrity rules. **6**
- OR iii. What are anomalies? Explain different types of anomalies considering following example **6**
staffBranch (*staffNo*, *sName*, *position*, *salary*, *branchNo*, *bAddress*)
- Q.5 i. Explain ACID properties of a transaction. **4**

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- ii. Describe different types of transaction failures. What is meant by catastrophic failure? **6**
- OR iii. What is serializability? Write an algorithm for testing conflict serializability of a schedule. **6**
- Q.6 Attempt any two:
- i. Explain how distributed database is different from normal database. List applications where distributed database is used. **5**
- ii. Explain various RAID levels. Suggest factors for choosing specific RAID level. **5**
- iii. Discuss data fragmentation with respect to distributed databases. **5**

Marking Scheme

IT3CO05 Database Management System

Q.1	i. Arranging customer names in ascending order is an example of (b) Information processing	1		Q.3 i. Union compatibility definition Relational algebra operators that require the relations to be union compatible	2 marks 1 mark		3
	ii. Which of the following can be a multi-valued attribute (a) Hobby	1		ii. Any seven rules of E-F Codd for RDBMS 1 mark each rule	(1 mark * 7)		7
	iii. Relation in relational database refers to (b) Table having records	1		OR iii. Correlation between algebra and calculus Example	4 marks 3 marks		7
	iv. Which of the following is not a DDL command? (b) Update	1		Q.4 i. Need of normalization in database development 1 mark for each reason.	(1 mark * 4)		4
	v. A relation is in first normal form if we remove (d) Multivalued attribute	1		ii. Explanation of entity integrity rules Referential integrity rules	3 marks 3 marks		6
	vi. A set of possible value should be associated with an attribute refers to (c) Domain constraint	1		OR iii. Anomalies Explanation of example	3 marks 3 marks		6
	vii. In case of any shut down during transaction before commit which of the following statement is done automatically? (a) Rollback	1		Q.5 i. ACID properties of a transaction 1 mark for each property	(1 mark * 4)		4
	viii. A transaction may not always complete its execution successfully. Such a transaction is termed (c) Aborted	1		ii. Different types of transaction failures Catastrophic failure	4 marks 2 marks		6
	ix. Location transparency allows for which of the following? (d) All of these	1		OR iii. Serializability An algorithm for testing conflict serializability of a schedule	2 marks 4 marks		6
	x. Storing a separate copy of the database at multiple locations is which of the following? (a) Data replication	1		Q.6 Attempt any two:			
Q.2	i. Difference data and information 0.5 mark for each difference.	2		i. Difference Distributed database & normal database Applications where distributed database is used	3 marks 2 marks		5
	ii. Diagram Explanation	4 marks 4 marks	8	ii. RAID levels Factors for choosing specific RAID level	4 marks 1 mark		5
OR	iii. Advantages of DBMS over file processing system. 1 mark for each advantage	(1 mark * 4) 8	8	iii. Data fragmentation Relation with distributed database	1.5 marks 3.5 marks	5	
