Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2022

CS3CO25 Data Base Management Systems

Programme: B.Tech. Branch/Specialisation: CSE

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. What is DBMS? **1**

(a) DBMS is a collection of queries
(b) DBMS is a low-level language
(c) DBMS is a programming language
(d) DBMS stores, modifies and retrieves data

ii. Which of the following is not a type of database? **1**

(a) Hierarchical (b) Network
(c) Object-oriented (d) Decentralized

iii. The ability to query data, as well as insert, delete, and alter tuples, is offered by _____. **1**

(a) Transaction Control Language
(b) Data Manipulation Language
(c) Data Definition Language
(d) Data Control Language

iv. What does an RDBMS consist of? **1**

(a) Collection of Records (b) Collection of Tables
(c) Collection of Keys (d) Collection of Fields

v. _____ is a set of one or more attributes taken collectively to uniquely identify a record. **1**

(a) Foreign key (b) Primary Key
(c) Super key (d) Alternate key

vi. R (A, B, C, D), FD: AB→CD, D→A, Candidate keys are- **1**

(a) B (b) AB
(c) AB and DB (d) BA and AC

P.T.O.

	vii.	Identify the characteristics of transactions- (a) Atomicity (b) Durability (c) Isolation (d) All of these	**1**
	viii.	Which of the following has "all-or-none" property? (a) Atomicity (b) Durability (c) Isolation (d) All of these	**1**
	ix.	A technique for direct search is- (a) Binary Search (b) Linear Search (c) Tree Search (d) Hashing	**1**
	x.	The storage structure which do not survive system crashes are _____. (a) Non-Volatile storage (b) Volatile storage (c) Stable storage (d) Dynamic storage	**1**
Q.2	i.	What is entity and attribute?	**2**
	ii.	Explain the three-level architecture of DBMS.	**3**
	iii.	Define Database Management System (DBMS). What are the major component of this system? Explain each component.	**5**
OR	iv.	Explain the various data models briefly with an example.	**5**
Q.3	i.	What is triggers?	**2**
	ii.	Explain select, project, join and division with example.	**8**
OR	iii.	Write the commands of DDL and DML. Discuss the different technique for optimising the queries.	**8**
Q.4	i.	Write trival and non trival dependencies with example.	**3**
	ii.	What is normalization? Explain different types of normalization with examples	**7**
OR	iii.	Consider the universal relation R{A,B,C,D,E,F,G,H,I} and the set of functional dependencies F = {A,B}→{C}, {A}→{D,E}, {B}→{F}, {F}→{G,H}, {D}→{I,J}. What is the key for R? Decompose R into Second normal form, then third normal form relations.	**7**
Q.5	i.	What are the problems of lock-based protocols?	**4**
	ii.	What do you mean by transaction processing? Explain ACID properties of transaction in detail.	**6**

OR	iii.	Differentiate conflict serializability and view serializability with suitable example.	**6**
Q.6		Attempt any two:	
	i.	Explain query processing and query optimization.	**5**
	ii.	What is data mining? Explain the phases of KDD in database.	**5**
	iii.	Discuss advanced database web databases, distributes databases and mobile databases.	**5**

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Marking Scheme
CS3CO25 Data Base Management Systems

Q.1	i.	What is DBMS? (d) DBMS stores, modifies and retrieves data		**1**
	ii.	Which of the following is not a type of database? (d) Decentralized		**1**
	iii.	The ability to query data, as well as insert, delete, and alter tuples, is offered by _____. (b) Data Manipulation Language		**1**
	iv.	What does an RDBMS consist of? (b) Collection of Tables		**1**
	v.	_____ is a set of one or more attributes taken collectively to uniquely identify a record. (c) Super key		**1**
	vi.	R (A, B, C, D), FD: AB→CD, D→A, Candidate keys are- (c) AB and DB		**1**
	vii.	Identify the characteristics of transactions- (d) All of these		**1**
	viii.	Which of the following has “all-or-none” property? (a) Atomicity		**1**
	ix.	A technique for direct search is- (d) Hashing		**1**
	x.	The storage structure which do not survive system crashes are _____. (b) Volatile storage		**1**
Q.2	i.	Entity Attribute	1 mark 1 mark	**2**
	ii.	Three-level architecture of DBMS 1 mark for each level	 (1 mark * 3)	**3**
	iii.	Definition Database Management System Component of this system Explanation of each component	1 mark 2 marks 2 marks	**5**
OR	iv.	At least four data models with an example		**5**
Q.3	i.	Definition of triggers		**2**
	ii.	Select, project, join and division with example. 2 marks for each operation	 (2 marks * 4)	**8**
OR	iii.	At least three commands of DDL and DML. Technique for optimising the queries	6 marks 2 marks	**8**
Q.4	i.	Definition of trival and non trival dependencies Example	2 marks 1 mark	**3**
	ii.	Definition normalization Types of normalization with examples 1 mark for each type (1 mark * 5)	2 marks 5 marks	**7**
OR	iii.	Key for R Second normal form Third normal form relations.	2 marks 2 marks 3 marks	**7**
Q.5	i.	Problems of lock-based protocols 2 marks for each	 (2 marks * 2)	**4**
	ii.	Transaction processing ACID properties of transaction	2 marks 4 marks	**6**
OR	iii.	Difference conflict serializability and view serializability 1 mark for each (1 mark *4) Example	 4 marks 2 marks	**6**
Q.6		Attempt any two:		
	i.	Query processing Query optimization	3 marks 2 marks	**5**
	ii.	Definition of data mining Phases of KDD in database	2 marks 3 marks	**5**
	iii.	Web databases Distributes databases Mobile databases	2 marks 2 marks 1 mark	**5**

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