

Enrollment No.....

Faculty of Engineering
End Sem (Even) Examination May-2022
CA5CO22 Database Management Systems
Programme: MCA Branch/Specialisation: Computer
Application

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. The term "Data" refers to: 1
 - (a) The electronic representation of the information (or data)
 - (b) Basic information
 - (c) Row Facts and figures
 - (d) Both (a) and (c)
 - ii. Which of the following refers to the level of data abstraction that describes exactly how the data actually stored? 1
 - (a) Conceptual Level
 - (b) Physical Level
 - (c) File Level
 - (d) Logical Level
 - iii. What is the different view to present a Table? 1
 - (a) Table
 - (b) Form
 - (c) Query
 - (d) Report
 - iv. What is the different view to present a Table? 1
 - (a) Datasheet View
 - (b) Design View
 - (c) Pivot TableView
 - (d) All of these
 - v. A common approach to normalization is to _____ the larger table into smaller tables and links them together by using relationships. 1
 - (a) Add
 - (b) Subtract
 - (c) Multiply
 - (d) Divide
 - vi. Every constraint on the table is a logical consequence of the table's: 1
 - (a) Fourth normal form
 - (b) Fifth normal form
 - (c) Domain/key normal form
 - (d) None of these
 - vii. If a transaction has obtained a _____ lock, it can read but cannot write on the item. 1
 - (a) Shared mode
 - (b) Exclusive mode
 - (c) Read only mode
 - (d) Write only mode

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|-------|---|---|
| viii. | A transaction is made to wait until all _____ locks held on the item are released. | 1 |
| | (a) Compatible (b) Incompatible | |
| | (c) Concurrent (d) Equivalent | |
| ix. | The file organization which allows us to read records that would satisfy the join condition by using one block read is: | 1 |
| | (a) Heap file organization | |
| | (b) Sequential file organization | |
| | (c) Clustering file organization | |
| | (d) Hash file organization | |
| x. | Which level of RAID refers to disk mirroring with block striping? | 1 |
| | (a) RAID level 1 (b) RAID level 2 | |
| | (c) RAID level 0 (d) RAID level 3 | |
| i. | Define instances and schemas of database with example. | 2 |
| ii. | Compare and contrast file systems with database systems. | 8 |
| iii. | Describe the structure of DBMS. | 8 |
| i. | Distinguish strong entity set with weak entity set. | 2 |
| ii. | Discuss about domain relational calculus in detail with example. | 8 |
| iii. | Illustrate different set operations in relational algebra with an example. | 8 |
| i. | List out the problems related to decompositions. | 2 |
| ii. | Define normalization? Explain 1NF, 2NF, 3NF Normal forms. | 8 |
| iii. | Illustrate multivalued dependencies and fourth normal form with example. | 8 |
| i. | Define a transaction. List the properties of transaction. | 2 |
| ii. | Explain ACID properties and illustrate them through examples. | 8 |
| iii. | Discuss serializability in detail with example. | 8 |
| i. | Define indexed sequential access method. | 2 |
| ii. | Illustrate insertion and deletion of an element in B+ trees with example. | 8 |
| iii. | What is RAID? Explain about RAID levels. | 8 |

Marking Scheme CA5CO22 Database Management Systems

Q.1	i.	The term "Data" refers to:		1
		(c) Row Facts and figures	1 Mark	
	ii.	Which of the following refers to the level of data abstraction that describes exactly how the data actually stored?		1
		(b) Physical Level	1 Mark	
	iii.	What is the different view to present a Table?		1
		(c) Query	1 Mark	
	iv.	What is the different view to present a Table?		1
		(d) All of these	1 Mark	
	v.	A common approach to normalization is to _____ the larger table into smaller tables and links them together by using relationships.		1
		(d) Divide	1 Mark	
	vi.	Every constraint on the table is a logical consequence of the table's:		1
		(c) Domain/key normal form	1 Mark	
	vii.	If a transaction has obtained a _____ lock, it can read but cannot write on the item.		1
		(a) Shared mode	1 Mark	
	viii.	A transaction is made to wait until all _____ locks held on the item are released.		1
		(a) Compatible	1 Mark	
	ix.	The file organization which allows us to read records that would satisfy the join condition by using one block read is:		1
		(c) Clustering file organization	1 Mark	
	x.	Which level of RAID refers to disk mirroring with block striping?		1
		(a) RAID level 1	1 Mark	
Q.2	i.	Define instances and schemas		2
		Definition	2 Marks	
	ii.	File systems with database systems.		8
		Comparison	4 Marks each (4 Marks*2)	
OR	iii.	Structure of DBMS		8
		Explanation	6 Marks	
		Diagram	2 Marks	
Q.3	i.	Strong entity set with weak entity set.		2
		Difference	2 Marks	

	ii.	Domain relational calculus		8
		Explanation	6 Marks	
		Diagram	2 Marks	
OR	iii.	Different set operations in relational algebra		8
		Explanation	6 Marks	
		Diagram	2 Marks	
Q.4	i.	Problems related to decompositions		2
		List of problems	2 Marks	
	ii.	Normalization		8
		Definition	2 Marks	
		Each NF	2 Marks each (2 Marks*3)	
OR	iii.	Multivalued dependencies and fourth normal		8
		Explanation	6 Marks	
		Example	2 Marks	
Q.5	i.	Transaction		2
		Definition	1 Mark	
		List of transaction.	1 Mark	
	ii.	ACID properties		8
		Explanation	4 Marks	
		Example	4 Marks	
OR	iii.	Serializability		8
		Explanation	4 Marks	
		Example	4 Marks	
Q.6	i.	Indexed sequential access		2
		Definition	2 Marks	
	ii.	Insertion and deletion of an element		8
		Insertion process	4 Marks	
		Deletion process	4 Marks	
OR	iii.	RAID		8
		Definition	2 Marks	
		Explanation	6 Marks	
