

Enrollment No.....



Faculty of Science  
End Sem (Odd) Examination Dec-2017  
CA3CO09 Database Management Systems

Programme: BCA 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. Which one of the following is used to define the structure of the relation, deleting relations and relating schemas **1**  
(a) Data Manipulation Language  
(b) Data Definition Language  
(c) Query  
(d) Relational Schema
  - ii. Which of the following is not a level of data abstraction: **1**  
(a) Physical level (b) Critical level  
(c) Logical level (d) View level
  - iii. For each attribute of a relation, there is a set of permitted values, called the \_\_\_\_\_ of that attribute. **1**  
(a) Domain (b) Relation (c) Set (d) Schema
  - iv. In an E-R diagram an entity set is represented by a: **1**  
(a) Rectangle (b) Ellipse  
(c) Diamond box (d) Circle
  - v. The subset of super key is a candidate key under the condition **1**  
(a) No proper subset is a super key  
(b) All subsets are super keys  
(c) Subset is a super key  
(d) Each subset is a super key
  - vi. Which of the following is not a integrity constraint - **1**  
(a) Not null (b) Positive (c) Unique (d) Check 'predicate'

[2]

[3]

- vii. Tables in second normal form (2NF): **1**  
(a) Eliminate all hidden dependencies  
(b) Eliminate the possibility of a insertion anomalies  
(c) Have a composite key  
(d) Have all non key fields depend on the whole primary key
- viii. Domain constraints, functional dependency and referential integrity are special forms of \_\_\_\_\_. **1**  
(a) Foreign key (b) Primary key  
(c) Assertion (d) Referential constraint
- ix. In order to undo the work of transaction after last commit which one should be used - **1**  
(a) View (b) Commit (c) Rollback (d) Flashback
- x. Transaction processing is associated with everything below except: **1**  
(a) Produced details, summary on exception report  
(b) Recording a business activity  
(c) Confirming an action or triggering a response  
(d) Maintaining data
- Q.2 i. Define data independence. **2**  
ii. What is database administrator? Explain its responsibilities. **3**  
iii. Draw and explain the detailed system architecture of DBMS. **5**
- OR iv. Write characteristics of database approach how it differs from traditional file system. **5**
- Q.3 i. What is a weak entity type? How to model it? Explain with suitable example. **3**  
ii. Write the differences between specialization and generalization concept. Explain aggregation with example. **7**
- OR iii. Draw an ER diagram for Hospital management system. (Assume all necessary entities and their relationships.) **7**
- Q.4 i. By considering suitable examples, describe the usage of SQL ALTER statements. **2**

- ii. Explain the following relational algebra operators by giving suitable example - **8**  
Union ,division, rename, difference
- OR iii. Explain the entity integrity and referential integrity constraints. Why is each considered Important? **8**
- Q.5 i. What is the importance of dependency preservation during decomposition? How to achieve it? **4**  
ii. What is normalization? Explain its need. **6**
- OR iii. What is multi valued dependency? Illustrate 4NF with an example. **6**
- Q.6 i. Define the term ACID properties. **2**  
ii. Why concurrency control is needed? Explain the problems that would arise when concurrency control is not provided by the database system. **8**
- OR iii. What is 2-phase locking protocol? How does it guarantee serializability? **8**

\*\*\*\*\*

CA3CO09 Database Management Systems

**Marking Scheme**

Q.1	i.	(b) Data Definition Language	<b>1</b>	Q.5	i.	What is the importance of dependency preservation during decomposition? How to achieve it?	<b>3+1</b>
	ii.	(b) Critical level	<b>1</b>		ii.	What is normalization? Explain its need.	<b>3+3</b>
	iii.	(a) Domain	<b>1</b>	OR	iii.	What is multi valued dependency? Illustrate 4NF with an example.	<b>3+3</b>
	iv.	(a) Rectangle	<b>1</b>	Q.6	i.	Define the term ACID properties.	<b>2</b>
	v.	(a) No proper subset is a super key	<b>1</b>		ii.	Why concurrency control is needed? Explain the problems that would arise when concurrency control is not provided by the database system.	<b>3+5</b>
	vi.	(b) Positive	<b>1</b>	OR	iii.	What is 2-phase locking protocol? How does it guarantee serializability?	<b>4+4</b>
	vii.	(a) Eliminate all hidden dependencies	<b>1</b>				
	viii.	(c) Assertion	<b>1</b>				
	ix.	(c) Rollback	<b>1</b>				
	x.	(b) Recording a business activity	<b>1</b>				
Q.2	i.	Define data independence.	<b>2</b>			<b>*****</b>	
	ii.	Definition database administrator Its responsibilities.	<b>1.5+1.5</b>				
	iii.	Draw and explain the detailed system architecture of DBMS.	<b>2+3</b>				
OR	iv.	Characteristics of database approach Differences from traditional file system.	<b>2.5+2.5</b>				
Q.3	i.	What is a weak entity type? How to model it? Explain with suitable example.	<b>1+1+1</b>				
	ii.	Differences between specialization and generalization concept. Aggregation with example.	<b>4+3</b>				
OR	iii.	Draw an ER diagram for Hospital management system. <b>4 entities with attribute and key+ relationship set+ mapping cardinality</b>	<b>3+2+2</b>				
Q.4	i.	SQL ALTER statements + example	<b>1+1</b>				
	ii.	Explain the following relational algebra operators by giving suitable example - Union ,division, rename, difference	<b>2 for each</b>				
OR	iii.	Entity integrity with Importance Referential integrity constraints with Importance	<b>4+4</b>				