GURU NANAK INSTITUTE OF TECHNOLOGY

An Autonomous Institute under MAKAUT

2022

DATABASE MANAGEMENT SYSTEMS

EC702A

TIME ALLOTTED: 3Hours **FULL MARKS:70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

Answer any *ten* from the following, choosing the correct alternative of each question: **10×1=10**

			Marks	CO No
1.	(i)	Which operator performs pattern matching in SQL? a) INTERSECT b) UNION c) LIKE d) None of these	1	CO2
	(ii)	Which is not an ACID property? a) Aggregation b) Consistency c) Isolation d) Durability	1	CO3
	(iii)	If a relation schema is in BCNF then this relation schema also is in- a) 4NF b) DKNF c) 5NF d) 3NF	1	CO1
	(iv)	The word 'loss' in lossless join property refers to- a) loss of relation b) loss of information c) loss of attributes d) None of these	1	CO2
	(v)	Fourth Normal form is dependent on- a) Multivalued Dependency b) Non-Trivial FD c) All of these d) None	1	CO3

(vi)	The information about data in a database is called- a) meta data b) Tera data c) data warehouse d) None	1	CO4
(vii)	A relation is considered to be in 2NF if it is in 1NF and it has no _____dependency. a) MVD b) Trivial Join c) Partial d) Full Functional	1	CO3
(viii)	The employee salary should not be greater than Rs.50000. This is a) Integrity Constraint b) Referential Constraint c) Feasible Constraint d) None of these	1	CO2
(ix)	A table can have only one – a) Primary key b) Candidate key c) Super key d) None	1	CO2
(x)	What is the cardinality of a table with 1000 rows & 10 columns? a) a)10 b) 100 c) 1000 d) None	1	CO2
(xi)	Which relationship is used to represent a specialization entity? a) ISA b) AIS c) ONIS d) WHOIS	1	CO3
(xii)	Relation dept year (dept name, total inst 2007, total inst 2008, total inst 2009). Here the only functional dependencies are from dept name to the other attributes. This relation is in a) Fourth NF b) BCNF c) Third NF d) Second NF	1	CO2

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

		Marks	CO No
2. a.	What is Multivalued Dependency?	2	CO3
b.	Explain Insertion, Deletion, Modification anomalies.	3	CO3

3.	Describe the three levels of data abstraction.	5	CO2
4.a.	Give one example of Derived attribute and Multivalued attribute	2	CO4
b.	What is Two-Phase Locking?	3	CO3
5.a.	What is Dense Index and Sparse Index?	2	CO1
b.	Define BCNF. Why it is stronger than 3NF.	3	CO1
6.	Explain packet switching network in M2M technology	5	CO4

GROUP – C
(Long Answer Type Questions)
Answer any ***three*** from the following: **3×15=45**

		Marks	CO No
7. a.	What is deadlock? Explain deadlock detection method	5	CO2
b.	Explain the difference between Primary index & secondary index.	4	CO3
c.	What is Blocking factor? What is block anchor?	6	CO2
8. a.	What is concurrency? What are the three problems due to concurrency? How the problems can be avoided, explain for one of the three problems.	7	CO2
b.	With proper example explain how recovery in a database system can be done using LOG files when the following techniques are used- i) Immediate update technique ii) Deferred update technique.	4	CO3
c.	Explain state Two-phase locking protocol (with example).	4	CO3
9. a.	Explain Wait-Die & Wound Wait protocols. What is shadow copying?	5	CO2
b.	Explain & draw the state transition diagram of transaction.	5	CO2
c.	What is weak entity set? Explain discriminator with example.	5	CO3
10. a.	List various DML Commands. Explain any one with example	5	CO2
b.	Discuss anomalies of un-normalized database	5	CO2
c.	Explain two phase locking protocol with example.	5	CO3
11.	Write short Notes on any three of the following:	3*5=15	
a.	Deferred update techniques	5	CO1
b.	Lossless &Lossy decomposition technique	5	CO1
c.	Extended E-R features	5	CO2
d.	Conflict serializable schedule	5	CO4
e.	B+ tree Index	5	CO1