GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2020-2021
DATABASE MANAGEMENT SYSTEMS
EC703C

TIME ALLOTTED: 3 HOURS   **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
(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)	To eliminate duplicate rows ……… is used a) No duplicate b) Eliminate c) Distinct 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)	Identify the characteristics of transactions a) Atomicity b) Durability c) Isolation d) All of the mentioned		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)	The view of total database content is a) Conceptual view b) Internal view c) External view d) Physical View		1	CO2
(xi)	Cartesian product in relational algebra is a) A Unary operator b) A Binary operator c) A Ternary operator d) Not defined		1	CO3
(xii)	The DML provides following function access to the database a) Retrieve data b) Add (or insert) records c) Delete records from database files d) All of these			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.		Draw an E-R diagram of Railway Reservation system.	5	CO2
4.		Compare between 3NF and BCNF with example.	5	CO4
5.	(a)	Explain BCNF	2	CO4
	(b)	What is log based recovery?	3	CO4
6.		Define BCNF. Why it is stronger than 3NF.	5	CO2

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

			Marks	CO No
7.	(a)	Create a B+ tree (of order-3) with the following keys 8, 5 , 1, 7, 3, 12, 9, 6 And now delete 12, 5	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 are the advantages of B+ tree over B-tree?	3	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.	6	CO3
	(c)	State Two-phase locking protocol with example.	6	CO3
9.	(a)	What is transaction?	5	CO5
	(b)	Describe the desirable properties of a transaction.	5	CO5
	(c)	Explain about transaction recovery techniques with suitable examples.	5	CO5
10.	(a)	Explain Entity Relationship Model.	5	CO2
	(b)	What do you mean by serializability of transactions?	5	CO5
	(c)	Show when deadlock occurs.	5	CO5
11.		Write short Notes on any three of the following :	(3x5)	
	(a)	Data Models	5	CO2
	(b)	Foreign key	5	CO1
	(c)	Aggregate functions	5	CO5
	(d)	Ordered indexing and hashing	5	CO1
	(e)	Wait/Die and Wound/Wait deadlock protocols	5	CO2