GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
DATABASE MANAGEMENT SYSTEM
EI605B

TIME ALLOTTED: 3HR **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)	What is the cardinality of a table with 500 rows & 50 columns? a.500 b.50 c. 25000 d. 450	1	CO1
	(ii)	What do you mean by one to many relationship between Teacher and Class table? a. One class may have many teachers b. One teacher can have many classes c. Many classes may have many teachers d. Many teachers may have many classes	1	CO1
	(iii)	This key that uniquely identifies each record is called : a. Primary Key b. Key Record c. Unique Key d. Foreign Key	1	CO1
	(iv)	A transaction completes its execution is said to be a. Saved b. rolled back c. committed d. none of the above	1	CO4
	(v)	Which of the following commands is used to get all the columns in a table a.* b.& c. # d. @	1	CO3
	(vi)	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	CO3

(vii)	A system is in a _____ state if there exists a set of transactions such that every transaction in the set is waiting for another transaction in the set. a. Idle b. Waiting c. Deadlock d. Ready	1	CO4
(viii)	A function that has no partial functional dependencies is in _____ form : a. 3NF b. 2NF c. 1NF d. BCNF	1	CO2
(ix)	Which data manipulation command is used to combines the records from one or more tables? a. SELECT b. PROJECT c. JOIN d.PRODUCT	1	CO3
(x)	If attribute A determines both attributes B and C, then it is also true that: a. A → B. b. B → A. c. C → A. d. (B,C) → A.	1	CO2
(xi)	A SQL query automatically eliminates duplicates (True / False) ? a. True b. False	1	CO3
(xii)	Which function is used to divides one numeric expression by another and get the remainder ? a. Power b. MOD c. Round d. Remainder	1	CO3

GROUP – B
(Short Answer Type Questions)

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

		Marks	CO No.
2.	How many types of attribute are used in a database. Classify them with proper example	5	CO1
3.	Find out the Candidate Keys from the given Functional Dependencies: R = ABCD, F={AB -> C, BC -> D, CD -> A}	5	CO2
4.	List different types of database users.	5	CO5
5.	Consider the following Relation : R R: (A B C) ------- 1 2 4 2 2 3	5	CO3

3 2 3
4 3 4
Perform the followings and find out the resulting tables:
i. π (σ (c>3)R)
ii. π (BC)

6. Define the followings with example on — 5 — CO1
i) Foreign Key
ii) Candidate key

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

			Marks	CO No.
7.	(a)	Explain the ACID property of a database	8	CO4
	(b)	Write and explain the structure of SQL UPDATE statement with suitable example.	5	CO3
	(c)	Define domain Constraints in database.	2	CO5
8.	(a)	Explain the SET operation in SQL with example of each one.	9	CO3
	(b)	Discuss about 1F with example.	3	CO2
9.	(a)	Explain Insertion, Deletion, Modification anomalies.	3	CO4
	(b)	Consider the following relations: EmployeeDetails = {EmpID, FullName, ManagerID, DateOfJoining} EmployeeSalary = {EmpID, Project, Salary} i. Write a SQL query to fetch the count of employees working in project. ii. Write a SQL query to fetch employee names having a salary greater than or equal to 5000 and less than or equal 10000.	6	CO5
	(c)	Find out the candidate key from the following relation with the following functional dependencies R = (ABCDE), F = {A -> C, E -> D, B -> C}	6	CO2
10.	(a)	Consider the following table:	8	CO2,CO5

STUD_NO	STUD_NAME	STUD_STATE	STUD_COUNTRY	STUD_AGE
1	RAM	HARYANA	INDIA	20
2	RAM	PUNJAB	INDIA	19
3	SURESH	PUNJAB	INDIA	21

Check that whether the table is in 3NF or not, if not convert it into 3NF form.

	(b)	Explain about various Data models.	7	CO1
11.		Write short Notes on any three of the following :		
	(a)	Three Schema architecture in DBMS	5	CO3
	(b)	Extended E-R features	5	CO1
	(c)	Mapping Constraints	5	CO1
	(d)	DDL	5	CO2