Program: F.Y.B.Sc CS **Semester:** I **Program Code:** UGCS02

Course: Fundamentals of Database System **Course Code:** NUCS102

Duration: 1 Hour **Examination Pattern:** NEP-Autonomous-External **Max. Marks:** 30

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat diagrams wherever necessary.
4. CO (Course Outcome), KL (Knowledge Level).

Examination:

REGULAR

Q. 1		**Attempt any TWO of the following.**	[10]	CO's	KL's
	(a)	State any five advantages of using a DBMS over a traditional file-processing system.		CO1	L1
	(b)	Explain the following aggregate functions with respect to their syntax and example: a) Count( ) b) Min( )		CO2	L2
	(c)	Construct an ER model for a college examination system involving students, lecturers, courses, and subjects. Show entities, important attributes, relationships, cardinalities, and participation constraints.		CO1	L6
	(d)	Compare DELETE, DROP, and TRUNCATE commands with respect to their effect on table structure, data, and possible use cases.		CO2	L4
Q. 2		**Attempt any TWO of the following.**	[10]	CO's	KL's
	(a)	Explain inner join, left outer join, right outer join, and full outer join.		CO3	L2
	(b)	List and explain any five characteristics of a relation in the relational data model.		CO1	L1, L2
	(c)	Describe any five SQL string functions with syntax and example.		CO2	L2
	(d)	Write SQL statements to create a view named HighSalaryEmployees showing employee ID, employee name, department, and salary for employees whose salary is above a specified amount. Then write statements to query and drop the view.		CO2	L3
Q. 3		**Attempt any TWO of the following.**	[10]	CO's	KL's
	(a)	Define the following terms: entity, attribute, relationship, primary key, and foreign key.		CO1	L1
	(b)	Create a Student table with columns as StudentID, StudentName, Age, Course, City and write SQL queries to: a) Insert 3 records b) Display students whose age is between 18 and 21. c) Display students who have enrolled for courses more than 2.		CO2	L3
	(c)	Explain the role of a Database Administrator in database protection.		CO4	L2
	(d)	Explain first normal form, second normal form, third normal form with suitable example.		CO3	L2

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