Enrolment No/Seat No.: _____

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT

(An Autonomous College U/s UGC Act 1956)

IMSC-IT SEMESTER-II, SEMESTER END EXAMINATION – SUMMER 2025

Subject Code: 1BS205 **Date: 21-05-2025**

Subject Name: DATABASE MANAGEMENT SYSTEM

Time: 11 AM to 01:30 PM **Total Marks: 70**

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A –Application, N –Analyse, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

		Marks	BL	CO
Q.1	**Multiple-Choice Questions**	**[05]**		
	(a) What does Normalization aim to achieve in database design?	**1**	**R**	**2**
	(i) Increase data redundancy **(ii)** Minimize data redundancy and dependency **(iii)** Eliminate unnecessary columns in a table **(iv)** Improve the graphical representation of the database			
	(b) In an Entity-Relationship (ER) Diagram, a relationship is represented by:	**1**	**R**	**2**
	(i) Ovals **(ii)** Rectangle **(iii)** Diamond **(iv)** Circle			
	(c) Which of the following is a major limitation of the Hierarchical Model?	**1**	**R**	**2**
	(i) It supports many-to-many relationships **(ii)** It only supports one-to-many relationships. **(iii)** It is highly flexible for complex relationships **(iv)** It is the most widely used in modern databases			
	(d) Which of the following is an example of a DDL (Data Definition Language) statement in SQL?	**1**	**A**	**5**
	(i) CREATE TABLE **(ii)** INSERT **(iii)** SELECT **(iv)** UPDATE			

(e)	Which of the following is used to uniquely identify a record in a table?	**1**	**A**	**5**

(i) NOT NULL **(ii)** UNIQUE KEY

(iii) FOREIGN KEY **(iv)**PRIMARY KEY

Q.2	**Attempt Any Two**	**[10]**		
(a)	Explain Different figures of Entity Relationship Model in detail.	**5**	**U**	**2**
(b)	Explain Network and Hierarchical Model in Detail.	**5**	**U**	**2**
(c)	Explain the different types of constraints used in a data model. Discuss their purpose with suitable examples.	**5**	**U**	**2**
Q.3	**Attempt Any Two**	**[10]**		
(a)	Explain different SQL Statements (DDL,DML,DCL,TCL) in Detail.	**5**	**U**	**5**
(b)	Describe various types of operators used in SQL in detail with examples.	**5**	**U**	**5**
(c)	Write an SQL query to create a table named as Product including 5 records of products. Insert records into it. Set electronics product price to 5000 and display it. Find the lowest and highest cost product from product table.	**5**	**A**	**5**
Q.4	**Attempt Any Two**	**[10]**		
(a)	Explain Aggerate Functions & Built-in Functions with example.	**5**	**U**	**5**
(b)	Explain Different types of constraints with example.	**5**	**U**	**5**
(c)	Write an SQL query to create a table named as Customer including 5 records of customers. Read all records from the table, Retrieve all columns where the customer's total purchase is greater than 20,000 and the city is "Mumbai", and Use the UPPER() function to display all customer names in uppercase and Sort the result by total Purchase in descending order.	**5**	**A**	**5**

SECTION B

		Marks	BL	CO
Q.5	**Multiple-Choice Questions**	**[05]**		
(a)	Which of the following is a common limitation of conventional file-based systems?	**1**	**R**	**1**
	(i) Data Security **(ii)** Data Integrity **(iii)** Data Redundancy **(iv)** Efficient Query Processing			
(b)	What is the main purpose of transaction management in a DBMS?	**1**	**R**	**1**
	(i) To ensure data is consistent and recoverable after failure **(ii)** To store data in flat files **(iii)** To manage user access and authentication **(iv)** To reduce data redundancy			
(c)	Which of the following is a major advantage of NoSQL Databases?	**1**	**R**	**3**
	(i) They allow easy horizontal scaling **(ii)** They support complex SQL queries **(iii)** They are based on relational tables **(iv)** They store data in a tree structure.			
(d)	What is a key feature of a Parallel Database?	**1**	**R**	**3**
	(i) It is designed for storing multimedia content. **(ii)** Data is stored in one central location for easy access. **(iii)** Data is distributed over multiple nodes for parallel processing. **(iv)** The database uses only non-relational data models.			
(e)	Which of the following is a characteristic of a NoSQL Database?	**1**	**R**	**4**
	(i) It uses a relational model for data storage. **(ii)** It is primarily used for transactional processing **(iii)** It stores data in a tabular form. **(iv)** It is designed to handle large-scale, unstructured data			
Q.6	**Attempt Any Two**	**[10]**		
(a)	Explain the concept of Data, Database and Database Management system.	**5**	**R**	**1**
(b)	Explain five major applications of DBMS in real life.	**5**	**U**	**1**

(c)	Write a short note on Conventional File Based System.	**5**	**U**	**1**

Q.7 Attempt Any Two **[10]**

(a)	What is Multimedia Database? Discuss its architecture with its advantage & disadvantages.	**5**	**U**	**3**
(b)	Define Temporal Database. Discuss its advantages & Disadvantages.	**5**	**U**	**3**
(c)	Write a short note on Centralized Database.	**5**	**R**	**3**

Q.8 Attempt Any Two **[10]**

(a)	Define what is instance and schema? Discuss view of data with architecture.	**5**	**R**	**4**
(b)	Explain the different administrator and user roles in Database Management System.	**5**	**R**	**4**
(c)	Explain the concept of ACID properties in detail.	**5**	**U**	**4**

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