+STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086
(For candidates admitted from the academic year 2023 – 2024 and thereafter)

M.Sc. DEGREE EXAMINATION – APRIL 2026
INFORMATION TECHNOLOGY
SECOND SEMESTER

COURSE : CORE
PAPER : DATABASE MANAGEMENT SYSTEMS
SUBJECT CODE : 23CS/PC/DB25
TIME : 1 ½ HOURS **MAX. MARKS: 50**

Q. No.	SECTION A **Answer all the questions (6 X 5 = 30)**	CO	KL
1.	a) What are the different types of keys used in relational databases? Explain. **(OR)** b) List and explain ACID properties with suitable examples.	CO1	K1
2.	a) Discuss various types of aggregate functions in SQL with examples and syntax. **(OR)** b) Describe about JOIN operations in SQL with examples.	CO2	K2
3.	a) Make use of suitable examples to explain extended E–R features including specialization, generalization, aggregation and inheritance. **(OR)** b) Apply multivalued dependencies (MVDs) to perform decomposition.	CO3	K3
4.	a) Apply user-defined exceptions in an example and explain their usage in PL/SQL programs. **(OR)** b) Make use of triggers in an example to explain their need and how triggers interact with transactions.	CO3	K3
5.	a) Analyse how storage structures support transaction processing. **(OR)** b)Examine about sorted ordered column in NoSQL.	CO4	K4
6.	a) Analyse mapping cardinalities and participation constraints with illustrations in an E-R model. **(OR)** b) Examine the fundamental operations of Relational Algebra with suitable examples.	CO4	K4
Q. No.	**SECTION B (2 x 10=20)** **Answer all the questions**	**CO**	**KL**
7.	a) Make use of a diagram and explain the architecture of Database System. **(OR)** b)Explain the need for Boyce–Codd Normal Form Decomposition and how you will check whether database normalization satisfies BCNF.	CO3	K3
8.	a) Elaborate cursor management in PL/SQL. Explain cursor declaration, opening, fetching, and closing operations. **(OR)** b) Discuss on Two-Phase Locking protocol and analyze how it ensures serializability.	CO4	K4

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