(Affiliated to University of Mumbai)	***End Semester Examination (R-24/R-25) SH 2026 Answer Key with marking scheme***	
Branch: CSE-IOT	Course: Database Management System	
Year/ Semester: SE/III	Course code: CSEC304)	
Time: 03 hours	Marks: 80	
		Marks
Q. 1	All questions are compulsory.	
A.	• Definition of DBMS and File System: 1 mark • Any four relevant differences: 4 marks	05
B.	• Super key: 1 mark • Candidate key: 1 mark • Primary key: 1 mark • Foreign key: 1 mark • Any other key with example: 1 mark	05
C.	• Definition: 1 mark • Physical data independence: 2 marks • Logical data independence: 2 marks	05
D.	• Atomicity: 1 mark • Consistency: 1 mark • Isolation: 1 mark • Durability: 1 mark • Suitable example or explanation: 1 mark	05
E.	• Super key – 1 mark • Candidate key – 1 mark • Primary key – 1 mark • Foreign key – 1 mark • Composite key / alternate key with example – 1 mark	05
F.	• Definition: 1 mark • Benefits: 1 mark • Suitable transaction example: 1 mark • Problems such as lost update or dirty read: 1 mark • Need for concurrency control: 1 mark	05
Q.2A	• Identification of entities and attributes: 2 marks • Primary keys: 1 mark • Relationships and cardinalities: 2 marks • Correct EER diagram: 2 marks • Mapping entities and relationships to relations: 2 marks • Foreign keys: 1 mark	10

OR		
Q.2B.	• Selection (σ): definition and expression/example: 2.5 marks • Projection (π): definition and expression/example: 2.5 marks • Union (∪): definition and expression/example: 2.5 marks • Rename (ρ): definition and expression/example: 2.5 marks	10
Q.3A	• ((a) Display all products: 2 marks • (b) Products in Electronics category: 2 marks • (c) Products with price greater than ₹20,000: 2 marks • (d) Find maximum price: 2 marks • (e) Count total products: 2 marks	10
OR		
Q.3B	• (a) Display all students: 2 marks • (b) Students in Computer Engineering: 2 marks • (c) Students with marks less than 75: 2 marks • (d) Display student(s) having minimum marks: 2 marks • (e) Count total students: 2 marks	10
Q.4A	• Definition and purpose of normalization: 2 marks • First Normal Form (1NF) with example: 2 marks • Second Normal Form (2NF) with example: 2 marks • Third Normal Form (3NF) with example: 2 marks • Correct progression/decomposition and explanation: 2 marks	10
OR		
Q.4B	• Definition of functional dependency: 1 mark • Trivial functional dependency: 2 marks • Non-trivial functional dependency: 2 marks • Full functional dependency: 2 marks • Partial functional dependency: 1.5 marks • Transitive functional dependency: 1.5 marks	10
Q.5A	• Definition of deadlock: 1 mark • Deadlock conditions: 2 marks • Prevention techniques: 2 marks • Detection using a wait-for graph or equivalent method: 2 marks • Suitable example and identification of deadlock: 2 marks • Recovery/resolution: 1 mark	10
OR		
Q5 B	• Explanation of concurrency control: 2 marks • Bank account transaction scenario: 2 marks • Transaction schedule demonstrating concurrent operations: 2 marks • Identification of concurrency problems: 2 marks • Suitable control technique and correct outcome: 2 marks	10

Q.6A	• Definition: 2 marks • Architecture or working: 2 marks • Types/deployment models: 2 marks • Advantages and limitations: 2 marks • Suitable examples: 2 marks	10
OR		
Q.6B	• Definition: 2 marks • Types of multimedia data: 2 marks • Architecture or storage/management: 2 marks • Indexing and retrieval techniques: 2 marks • Applications and suitable examples: 2 marks	10
*********** All the Best***********		