	End Semester Examination (R-24) SH 2025 Answer Key with marking scheme
SIES *Graduate School of Technology (Autonomous)* RISE WITH EDUCATION NAAC A+ (Affiliated to University of Mumbai)	
Branch:	Course:
Year/ Semester:	Course code:
Time: 03 hours	Marks: 80

			Marks
Q. 1	Attempt any FOUR. (All questions carry equal marks)		
A.	Describe the responsibilities of a Database Administrator. 5 Roles each carry 1M		5M
B.	List and explain different aggregate functions with example. 5 Functions 1M each		5M
C.	Analyze how the enforcement of referential integrity constraints impacts data consistency and relational database operations. Show anamolies of database 5M		5M
D.	Explain shadow paging recovery Scheme. Defn.1M Dig 1M Explanation 3M		5M
E.	Explain the Extended Entity Relationship features with example. 5 features 1M each		5M
F.	Compare and contrast the various types of database keys, explaining how each key type influences database design and integrity. 5 Types 1M each		5M
Q.2	Attempt any FOUR. (All questions carry equal marks)		**10M**
A.	Design an Extended Entity-Relationship (EER) diagram for a Hotel Management System. The system should manage hotel room bookings, customers, employees, and services offered by the hotel. The diagram must include entities, their attributes, and relationships among entities. Also, specify primary keys and cardinalities EER dig defn 1M Notation 2M ER dig: 7M		
B.	Explain different types of JOINS in relational algebra. Four types each carry 2.5M		10M
C.	Consider the following database. Write SQL query. Employee(ename,street,city,date_of_joining) Works(ename, comp_name,salary) Company(Comp_name, city) a)Create above table with at least one constraint. 2M b) Insert values for all the tables given. 2M c))Modify the database structure so that employee address is to be added to employee details. 2M d) Modify the database so that 'jones' now lives in 'Newtown' 2M		10M

		e) Display employee names in descending order of their salary. 2M	
	D.	Explain various functional dependencies in relational database with examples. 5 Functional Dependency , Each carry 2M.	10M
	E.	Analyze the concepts of Conflict Serializability and View Serializability in transaction scheduling, and evaluate their roles in maintaining database consistency. Illustrate with examples how different schedules can be classified under each type of serializability. Conflict Serializability with explanation 5M View Serializability with explanation 5M	10M
	F.	Define Transaction. Explain it with respect to ACID properties. Define Transaction:2M Four ACID properties 8M (Each Property Carry 2M)	10M
Q.3		Attempt any FOUR. (All questions carry equal marks)	
	A.	Describe Data Control Language (DCL) commands with example. Grant Command with ex: 2.5M Revoke Command with ex:2.5M	05
	B.	Analyze the advantages of a Database Management System (DBMS) compared to traditional file systems by evaluating their impact on data management, security, and efficiency. Advantage of DBMS:3M Drawbacks of file system:2M	05
	C.	Define normalization. Explain 3NF with an example Define normalization;1M 3NF with an example:4M	05
	D.	Illustrate two phase locking protocol with example. Two phase locking protocol defn:2M two phase locking protocol with example:3M	05
	E.	List and explain different types of attributes with example. 5 Attributes 1M each	05
	F.	Write short note on : Unary Relational Operations. Select Operation:2M Project Operation:2M Rename Operation:1M	05