

[Time:2.30 Hrs]		[Marks:75]
Please check whether you have got the right question paper.		
N.B:	1. All question are compulsory. 2. Figures to the right indicate full marks. 3. Students answering in the regional language should refer in case of doubt to the main text of the paper in English.	

Q.1	Attempt <u>any three</u> of the following: a. State and explain the 12 Codd's rule for relational database b. Define business rules and its characteristics c. With diagrammatic representation explain database architecture d. Write a note on transaction management systems e. List the various ER diagram notations. What is Unified Modelling Language and state its advantages and disadvantages of UML Diagrams f. Explain the concept of mapping cardinalities in detail	15
Q.2	Attempt <u>any three</u> of the following: a. Explain the concept of Relational Calculus. b. Write a short note on BCNF c. Explain set operators with example. d. Write a short on tuple Relational Calculus e. State the difference between Calculus vs Relational Algebra f. Explain the aggregate operation of relational algebra	15
Q.3	Attempt <u>any three</u> of the following: a. Explain referential integrity constraints with example. b. What are constraints? What are the different types of constraints? Explain c. Explain different types of SQL commands. d. What is a view? Explain how to create a view. e. What are joins? What are the different types of joins? Explain. f. What is a trigger? Why is it required? Explain with an example.	15
Q.4	Attempt <u>any three</u> of the following: a. State and explain the ACID properties of transaction b. Explain Timestamp based concurrency control. c. Explain the different ways to handle deadlock d. Show that two phase locking protocol ensures conflict serializability e. Explain the need of concurrency control in transaction management f. Explain Deadlock Recovery	15

Q.5	<p>Attempt <u>any three</u> of the following:</p> <ul style="list-style-type: none">a. Differentiate Procedures and Functionsb. Explain Exception Handling in PL/SQL with examplec. What are hierarchical queries? Explain the syntax of hierarchical queries.d. Explain how triggers are created. Give suitable example.e. What is a cursor? Explain implicit and explicit cursors. How are explicit cursor controlled?f. What are packages? What are the components of packages? How are packages developed? Explain with syntax and example.	15
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