Academic Year: 2019-2020   Program: B.TECH
Year : 3/4 CSE – A,B & C   Semester : I
Course: **Database Management Systems**   Code: CSE312
Date:**12-10-2019**   Time: **09:30AM - 11:30AM**
     Max Marks : **40M**

NOTE: Answer any three of the following six questions, one question from each unit. Students should write the answers in serial number i.e. 1a, b, 2a, b, 3a, b, etc. and in one space in the answer book.

	Question	MARKS	For Faculty Use	
			Contributing CO	Blooms Taxonomy Level
UNIT-III				
1	Develop a Trigger for the following scenario: • A teacher has already created a table **stu_marks** with stu_id, sub1, sub2, sub3, total, percentage as attributes (initially table is empty). • Before updating the table with marks, the trigger has to calculate total, percentage of the marks and assign grade according to the following constraints: [percentage>90:grade=outstanding],[percentage>=80 and percentage<=90:grade=good] [percentage>=70 and percentage<80 :grade=average][Else grade=not promoted]	10	CO3	L3
(or)				
2	Identify the need for having a CURSOR when you work with database using a host language. Give the general form of a cursor with syntax and example.	10	CO3	L3
UNIT-IV				
3	a) Consider a schema R(A,B,C,D) and Functional Dependencies A->B, C->D. Suppose schema R is divided into R1(A,B) and R2(C,D). Find whether R1 and R2 are dependency preserving (and/or) lossless with proper reasoning.	8	CO5	L5
	b) Show that La Padula Principles of Mandatory Access Control mechanism provides more security and authorization than Discretionary Access Control mechanisms with example scenario.	7	CO5	L3
(or)				
4	a) Make use of the Normalization properties and classify the below relations to which normal forms do they belong **along with the reasoning**: i)R(A,B,C,D), F(AB->C,A->D,B->C) ii)R(P,Q,R,S),F(PQ->R,R->S) iii)R(CSZ),F(CS->Z,Z->C) iv)R(A,B,C),F(A->B,B->A,AB->C)	7	CO5	L3
	b) Construct an authorization graph for the following grant and revoke commands. Write down the set of access rights, each user has after executing each grant/revoke command. GRANT SELECT ON Sailors TO Art WITH GRANT OPTION(executed by Joe) GRANT SELECT ON Sailors TO Bob WITH GRANT OPTION (executed by Art) GRANT SELECT ON Sailors TO Art WITH GRANT OPTION executed by *Bob)* GRANT SELECT ON Sailors TO Cal WITH GRANT OPTION *(executed by Joe)*	8	CO5	L3

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(PTO)

	GRANT SELECT ON Sailors TO Bob WITH GRANT OPTION*(executed by Cal)* REVOKE SELECT ON Sailors FROM Art CASCADE*(executed by Joe)*			

UNIT-V

5	Consider the following sequence of operations on the database: _ Transaction T1 writes A. _ Transaction T2 writes B. _ Transaction T2 writes C. _ The system ushes the log to disk and also ushes page P2 to disk. _ Transaction T1 writes D. _ Transaction T1 commits. The system writes a commit log record and pushes the tail of the log to disk. _ Transaction T2 writes B. _ The system writes an END log record for T1. _ The system crashes. Implement ARIES Algorithm on the above sequence of operations after the system crashes(Write down the Analysis, Redo, Undo operations for this sequence.)	15	CO1	L5
6	Concurrent execution of Conflicting Actions of transactions leaves Database in inconsistent state. Support the statement with appropriate examples.	15	CO1	L5

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