Total	No	. of Questions : 8] SEAT No. :			
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1 -0	,,	[6003]-346			
T.E. (Computer/A.I.D.S.)					
DATABASE MANAGEMENT SYSTEM					
	(2019 Pattern (Semester - I) (End Sem.) (310241)			
		[Max. Marks : 70			
Instructions to the candidates:					
	1)	Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.			
	2)	Neat diagrams must be drawn wherever necessary.			
	3)	Figures to the right indicate full marks.			
4	4)	Assume suitable data, if necessary.			
		₩			
		9.			
Q1) 3	a)	What is the impact of insert, update & delete anomaly on overall design			
		of database? How normalization is used to remove these anomalies?			
		[6]			
1	b)	Explain different features of good relational database design. [6]			
(c)	Explain following Codd's rules with suitable examples: [6]			
		i) Guaranteed Access Rule			
		ii) Comprehensive Data Sub-Language Rule			
		iii) High-Level Insert, Update, and Delete Rule			
		OR OS.			
(2)	o)	Explain entity and referential integrity constraints used in SOI [6]			
Q2) a	a)	Explain entity and referential integrity constraints used in SQL. [6]			
1	h)	Define 3NF, Explain with example, how to bring the relation in 3NF?			

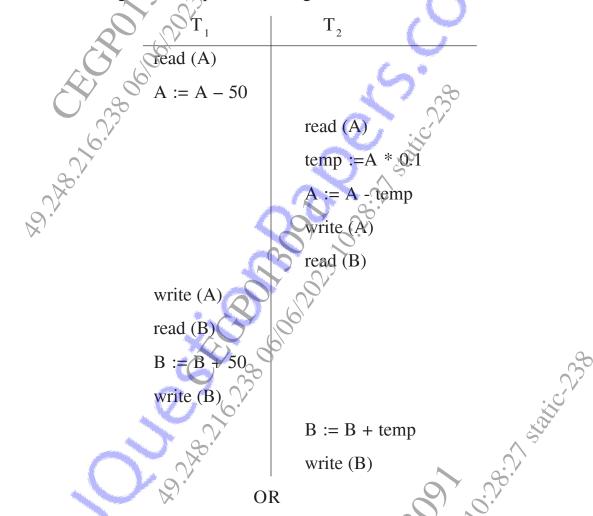
- **[6]**
- Explain following Codd's rules with suitable examples:

 i) Physical Data Independence

 ii) Integrity Independence

 iii) Systematic Treatment of NULL Values **[6]**

- Q3) a) State and explain the ACID Properties. During its execution, a transaction passes through several states, until it finally commits or aborts. List all possible sequences of states through which a transaction may pass. Explain the situations when each state transition occurs. [9]
 - b) Check whether following schedule is view serializable or not. Justify your answer. (Note: T₁ & T₂ are transactions). Also explain the concept of view equivalent schedules and conflict equivalent schedule considering the example schedule given below: [8]



- Q4) a) Suppose a transaction T_i issues a read command on data item Q. How time-stamp based protocol decides whether to allow the operation to be executed or not using time-stamp based protocol of concurrency control. Explain the situations when each state transition occurs. [9]
 - b) Write a short note on: [8]
 - i) Log based recovery
 - ii) Shadow Paging

Q 5)	a)	BASE Transactions ensures the properties like Basically Availa Soft State, Eventual Consistency. What is soft state of any syst how it is depend on Eventual consistency property?	
	b)	Enlist the different types of NOSQL databases and explain with suita examples.	able [8]
	c)	What is structured and unstructured data. Explain with example. OR	[4]
Q6)	a)	Explain the CAP theorem referred during the development of distributed application.	any [6]
	b)	Analyze the use of NOSQL databases in current social network environment also explain need of NOSQL databases in sometworking environment over RDBMS.	_
	c)	Explain the difference between SQL and NOSQL database.	[6]
Q 7)	a)	Write a short note on emerging databases:	[9]
		i) Active and Deductive Databases	
		ii) Main Memory Databases	
	b)	What is object relational database system. Explain Table inherita with example.	ince [8]
Q8)	a)	Write a short note on complex data types:	[9]
		i) Semi-structured data	.0
		ii) Features of semi-structured data models	
	b)	Describe spatial data like Geographic data and Geometric data.	[8]
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[600	3]-34	3	