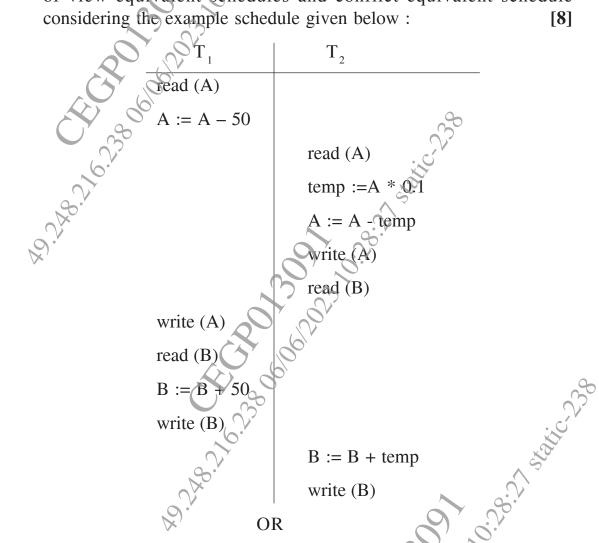
Total No. of Questions: 8]	200	SEAT No. :
P-268		[Total No. of Pages : 3
	[6003]-346	
	computer/A.I.I	0.S.)
DATARASE M	ANACEMEN	T SVSTFM

(2019 Pattern) (Semester - I) (End Sem.) (310241) *Time* : 2½ *Hours*] [*Max. Marks* : 70 Instructions to the candidates: 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. Figures to the right indicate full marks. 3) *4*) Assume suitable data, if necessary. (01) a) What is the impact of insert, update & delete anomaly on overall design of database? How normalization is used to remove these anomalies? [6] Explain different features of good relational database design. b) [6] Explain following Codd's rules with suitable examples: c) i) Guaranteed Access Rule Comprehensive Data Sub-Language Rule ii) High-Level Insert, Update, and Delete Rule iii) OR Explain entity and referential integrity constraints used in SQL. [6] *Q***2**) a) Define 3NF. Explain with example, how to bring the relation in 3NF? b) **[6]** Explain following Codd's rules with suitable examples: [6] c) Physical Data Independence i) Integrity Independence ii) iii) Systematic Treatment of NU

- 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: $T_1 \& T_2$ 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 suit 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 networking environment also explain need of NOSQL databases in social networking environment over RDBMS. [6]				
	c)	Explain the difference between SQL and NOSQL database.	[6]		
Q 7)	a)	Write a short note on emerging databases :	[9]		
		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			
		ii) Features of semi-structured data models			
	b)	Describe spatial data like Geographic data and Geometric data	[8]		
		19. S.			

		Describe spatial data like Geographic data and Geometric data.			