Faculty of Engineering

Mid Sem II Examination April -2023

CS3CO39 Database Management System

Programme: B.Tech. Branch/Specialisation: CS-All

Duration: 1.5Hrs. **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	4NF is designed to cope up with : a) Transitive dependency b) Join dependency c) Multi valued dependency d) None of these	1	BL01	CO3	PO01	
	ii.	5NF should restrict the..... : a) Transitive dependency b) Join dependency c) Multi valued dependency d) None of these	1	BL01	CO3	PO01	
	iii.	Data that causes inconsistency leads to: a) Data integrity b) Data redundancy c) Data anomaly d) Good data	1	BL01	CO3	PO01	
	iv.	Transaction enters into its _____ state when it finishes the final statement. a) Abort state b) Partially committed state c) Committed state d) Active state	1	BL01	CO4	PO01	
	v.	In locking Protocols what exclusive mode defines. a) Read only b) Write only c) Read and Write both d) None	1	BL01	CO4	PO01	

	vi.	A system is in a _____ state if there exists a set of transactions such that every transaction in the set is waiting for another transaction in the set. a) Idle b) Waiting c) Deadlock d) Ready	1	BL01 CO4 PO01
Q.2	i.	Discuss problems caused by redundancy and the purpose of normalization.	2	BL02 CO3 PO02
	ii.	Define functional dependency and explain its uses in database design.	2	BL02 CO3 PO02
	iii.	What is key ? Explain the following keys with example : a) Candidate Key b) Primary Key c) Foreign Key	3	BL03 CO3 PO02
	iv.	Find all CANDIDATE KEYs and Prime and non-Prime attributes in the following relation: R(ABCDEFGH) FD: CH→G,A→BC,B→CFH ,E→A, F→EG	5	BL03 CO3 PO03
OR	v.	Find the all CANDIDATE KEY of the following: a) R(A,B,C,D) and FD={A→B,B→C,C→D} b) R(A,B,C,D) and FD={A→B,B→C,C→D,D→A}	5	BL03 CO3 PO03
Q.3	i.	Define a Transaction? List the properties of transactions and explain them.	3	BL01 CO4 PO01
	ii.	Draw a transaction state diagram and describe each state that a transaction goes through during its execution.	4	BL03 CO4 PO01
	iii.	What is the 2-phase locking protocol? How does it guarantee serializability?	5	BL02 CO4 PO03
OR	iv.	Explain the different types of failures in DBMS.	5	BL01 CO4 PO01

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