Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110
(An Autonomous Institution, Affiliated to Anna University, Chennai)
Department of Computer Science and Engineering
Continuous Assessment Test – 2
Question Paper

Degree & Branch	B.E. CSE				Semester	IV
Subject Code & Name	UCS1404 Database Management Systems				Regulation: 2018	
Academic Year	2020-2021	Batch	2019-2023	Date	12.04.2021	FN 11.00 to 11.40 AM
Time: 40 Minutes	Answer All Questions				Maximum: 20 Marks	

Part – B Answer all the questions (2×10 = 20 Marks)

<K3>	1. Consider the relation: SJT:(student, subject, teacher) with the set of functional dependencies F: (1+1+6+2) FD1: {student, subject} -> teacher FD2: teacher -> subject <table><tr><td>*Student*</td><td>*Subject*</td><td>*Teacher*</td></tr><tr><td>Ramesh</td><td>Maths</td><td>Prof. Raghav</td></tr><tr><td>Ramesh</td><td>Physics</td><td>Prof. Raj</td></tr><tr><td>Suresh</td><td>Maths</td><td>Prof. Raghav</td></tr><tr><td>Suresh</td><td>Physics</td><td>Prof. Krishna</td></tr><tr><td>Suresh</td><td>Chemistry</td><td>Prof. Hemant</td></tr></table> a. Identify the candidate key(s) of SJT. b. Explain the update anomalies before decomposition. c. Analyze the two cases of decomposition based on the selection of primary key from the candidate keys. d. After decomposition, is the resulting relations are free from update anomalies and satisfy dependency-preserving property?	<CO3>
	(OR)	
<K3>	2. Consider the following relation: R={A,B,C,D,E,F} with the following set of FD's F: (2+2+6) FD1: $A \rightarrow CF$ FD2: $A \rightarrow D$ FD3: $C \rightarrow D$ FD4: $B \rightarrow E$ Construct the minimal cover S for the above set F.	<CO3>

	Identify the key R for given S? Decompose R into 2NF and then 3NF relations. State the reasons behind each decomposition.	
<K2>	3. Consider the following relational schema: (3+3+4) Emp(**eid : integer** , ename : string, dob : date, salary : real) Works(**eid : integer , did : integer** , pct_time : integer) Dept(**did : integer** , dname : string, budget : real, managerid : integer) i) Create a view *Senior_Employee* on Emp that shows eid, name, dob and salary of all employees who were born before 1970's. Is the view updatable? Justify your statement by writing appropriate SQL statements. ii) Give an example of view from the above schema, that suffers from update operations or not updatable. Explain why your example presents the update problem. iii) Write a trigger Chk_age which fires whenever an employee age is not in the range of 20 to 56 yrs.	**<CO3>**
	(OR)	

<K2>	4. a. Given R={A,B,C,D} with the following set of functional dependencies, F: (5+5)
	    A→BCD
	    BC→AD
	    D→B
	    Determine the two different minimal set of FD's S and T given F using minimal cover.
	
	b. A car-rental company maintains a database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number,license number, manufacturer, model, date of purchase, and color. Special data are included for certain types of vehicles:
	• Trucks: cargo capacity.
	• Sports cars: horsepower, renter age requirement.
	• Vans: number of passengers.
	• Off-road vehicles: ground clearance, drivetrain (four- or two-wheeldrive).
	Construct ER/EER diagram for the above specification along with the constraints
		<CO3>
		
		\<CO1>

Prepared By P.Mirunalini B.Senthilkumar	Reviewed By	Approved By
Course Coordinator	PAC Team	HOD