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PES University, Bangalore

(Established under Karnataka Act No. 16 of 2013)

UE14CS252

MAY 2016: END SEMESTER ASSESSMENT (ESA) B.TECH. IV SEMESTER

UE14CS252- Database Management Systems

Time: 3 Hrs | Answer All Questions | Max Marks: 100

1.	a)	How data independence is achieved in DBMS? Write in 3 to 4 sentences.	04
	b)	Draw an ER diagram to capture the information of the following example. Furniture shop keeps details of its customers as name, phone no, address. Details of items along with quantity and price are maintained. customers shopping details along with date of purchase and mode of payment should be recorded. Each customer can purchase one or more items on any day.	06
	c)	Compare and contrast file systems with DBMS.	05
	d)	Write in the symbols for Weak entity set, total participation, key attribute, multi valued attribute and partial key.	05
2.	a)	Considering a base table, as student (usn, name, dept, cgpa), write view definition to list student details of CS dept. Is it possible to insert records into student through the view? If Yes, write the restrictions for this insertion.	04
	b)	Consider the database schema, Student(roll, name, dept) Attends(roll, id, on_date) Workshop(id, on_date, city) i) Write create table statement for Attends table, with proper primary key and foreign key declarations. ii) write a SQL statement to delete the on_delete column from Attends table. iii) write an SQL query to display the student details who have not attended any workshop on 05/04/2015	06
	c)	What is referential integrity constraint? explain with a proper example.	05
	d)	Write SQL statement to display total number of workshops scheduled in each city. what should be done if we want to see only those cities, where at least 4 workshops are held on 14/2/2014.	05
3.	a)	Write the following queries as relational algebra expressions. Author(name, city, age, expert_in) Book(title, author_name, pages, price) i> list the author details who are expert in Pattern recognition and live in Bengaluru. ii> list the titles of the books which are written by Stallings and have either 380 pages or cost Rs.450. iii> display author names, who have authored books on OS and DS as well.	01+ 01+ 02
	b)	Considering an ER diagram, write any 6 steps to arrive at a database schema	06
	c)	Explain any 3 structural constraints, that are defined on the table.	05
	d)	With proper example, write division operator assuming appropriate tables. what would be an equivalent SQL operation for this?	05
4.	a)	Find all keys of the relation R(ABCDEFG) with functional dependencies AB → C CD → E EF → G FG → E DE → C BC → A	04
	b)	Considering the database instance, indicate those FDs, which hold good now? justify	06

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X	Y	Z
12	3	10
1	1	11
3	3	10

i> X -> Y and Y-> Z
ii> Y -> X and Y-> Z
iii> Y -> Z and Z-> Y

	c)	Write the steps to compute a minimal cover for FD set.	05
	d)	Define super key, candidate key and primary key. If required, quote an example to indicate them.	05
5.	a)	What is the result of analysis phase in ARIES?	04
	b)	Given a schedule with 3 transactions, how do we know, if there is a deadlock situation? Deadlocks can be avoided in case of strict 2 phase locking or in case of 2 phase locking(non strict) or neither? justify.	06
	c)	Write any 2 reasons to control the concurrent execution of transactions. mention the method of control.	05
	d)	Mention the two statements, that give additional rights to users and then take out those special powers. These special powers that are given to users, are they transferrable? If yes, how? justify.	05