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PES University, Bangalore

(Established under Karnataka Act No. 16 of 2013)

UE14CS252

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

Summer Term

UE14CS252- Database Management Systems

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

1.	a)	How is traditional file processing different from database approach? Explain	10
	b)	Define the following terms Cardinality Ratio,Entity,Composite attribute,Weak Entity	4
	c)	Draw an ER diagram for Big Bazaar database that 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.	6
2.	a)	Consider the following relations for a database that keeps track of business trips of sales persons in a sales office: SALESPERSON(salespersonid,name,start_date,dept_no) TRIP(salespersonid,from,to,departure_date,return_date,trip_id) EXPENSE(trip_id,account_no,amount) Specify the foreign keys for the above schema. Specify the following queries in SQL. i. Give the details (all attributes of trip relation) for trip that exceeded 10000 in expenses. ii. b) Print the 'salespersonid' and 'name' of the salespersons who took trips to 'delhi'. iii. c) Print the total trip expenses incurred by the salesman with salespersonid='504'	10
	b)	Bring out the differences between i. Nested query and correlated nested query ii. Order by and group by	4
	c)	Mention and explain the different key constraints that can explicitly specified in the database schema.	6
3:	a)	Consider the following schema and write the relational algebra expressions for the queries given below: SAILOR(Sid,Sname,Rating,Age) BOATS(Bid,Bname,Color) RESERVES(Sid,Bid,Day)(i. Find names of sailors who reserved red boat ii. Find the colors of boats reserved by "ramesh" iii. Find names of sailors who have reserved a red or a green boat.	10
	b)	Discuss the correspondences between the ER model constructs and the relational model constructs Show how each ER model construct can be mapped to the relational model .	10

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4.	a)	Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies F={ {A,B} -> {C},{A} -> {D,E},{B}->{F},{F} ->{G,H},{D} -> {I,J}}. What is the key for R? Decompose R into 2NF, then 3NF relations by giving the definitions of key of R, 1NF, 2NF and 3NF.	10
	b)	Mention the informal design guidelines for relation schemas.	4
	c)	Write short notes on the following with an example. i. Multivalued dependencies ii. Join dependencies	6
5.	a)	Explain the ARIES Recovery algorithm.	10
	b)	With examples discuss why concurrency control is needed.	10