Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

Re-exam

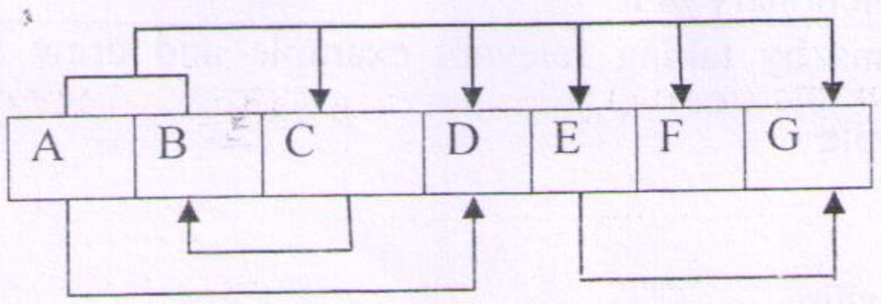
January 2020

Max. Marks: 60 Classes: S.E.

Course Code: CE42 and IT43 **Name of the Course:** Database Management Systems

Semester: IV **Branch:** Computer and I.T.

Q .No		Max Marks	CO
Q1(a)	Explain the concept of Data Independence ? What are two types of data independence in any typical DBMS system?? **OR** Draw the overall system structure of a database system , what is the role of query optimizer and data dictionary in it.	6	1
Q1(b)	Define the following terms by taking relevant example and draw ER diagram for the each example 1) IS-A relationship 2) Recursive Relationship **OR** A university database contains information about professors (identified by an emp_id number) and courses (identified by course_ID) and semester (Fall / Spring / Summer) . Draw an ER diagram for each of the given situation : a) Each professor teaches exactly one course b) Each course is taught in at the most two semesters Draw the ER / EER diagram with assumption of relevant attributes	6	1
Q2(a)	Creates a row-level trigger for the following Student table that would fire for INSERT or UPDATE operations. This trigger will display the Mark difference between the old Marks and new Marks. STUDENT(UID,SNAME,AGE,CITY,MARK)	6	3

Q2(b)	"The DBA is responsible for the overall security of the database system" - Jusify this statement by giving related four responsibilities of DBA	6	3
Q3(a)	Consider the following database schems, Sailors(sid, sname, rating, age) Boats(bid, banme, color) Reserves(sid, bid, day) Write the the following SQL queries : 1) Find the total number of sailors whos age is 40 2) Find the colors of the boat reserved by Lubber 3) Give the name of sailors who have reserved boat 103 4) Find the name of sailors who have reserved the red boat 5) Find the name of sailors whose age is greater than 30 6) Find the name and age of sailors with rating above 7.	6	2
Q3(b)	Write the relation Algebra queries for the database schema given in Q3(a)	6	2
Q4(a)	Consider a dependency diagram of relation R and normalize it up to third normal form.  	6	4
Q4(b)	Relation R has eight attributes ABCDEFGH. Fields of R contain only atomic values. F = {CH -> G, A-> BC, B-> CFH, E-> A, F-> EG } is a set of functional dependencies (FDs) so that F+ is exactly the set of FDs that hold for R. How many candidate keys does the relation R have ?	6	4
Q5(a)	Consider the Data table with Item 1 and Item 2.Current value of is Item 1 is 982 and Item 2 is 458.Transaction T1 want to transfer 45 Item from Item 1 to Item 2. Create a transaction for the same. Show the effect of Atomicity and consistency property on above transaction. OR With the help of example describe Serial schedule	6	5
Q5(b)	With the help of diagram describe shadow paging method.	6	5