NAVRACHANA UNIVERSITY
School of Business & Law- B. C. A
End Semester Examination November 2017
Second Year Semester 3
Relational Database Management System (CA 105)

Date: 22/ 11/ 2017

Time: 2 hours (1 PM to 3 PM)

Marks: 30

Instructions

Write each section on a new page.
Write output where necessary

SECTION A

Question 1. List any 6 Codd's rules. Consider a relation as shown below. Identify the anomalies arising in database design.   7

Sr. No.	Student Name	Course_name	Content
1.	Rahul Bose	Data Mining	Data Warehousing, Knowledge Discovery
2.	Asha Kapoor	Web Design	HTML
3.	Lakshmi Iyer	Data Mining	Data Warehousing, Knowledge Discovery
4.	Manav Gadvi	Programming	C, C++
5.	Krupali Shah	Programming	null

Question 2. Do as Directed: 3

1. Identify trivial and non-trivial dependencies in the following:
a. person_id person_name -> person_name
b. person_id -> course_name
2. Identify full functional dependency and partial functional dependency.
a. customer_id order_no -> order_date
b. customer_id -> customer_name customer_address
3. Find closure set of attributes of A for R(ABCDEFGH) based on the following dependencies.

     AB -> CDE

     A -> B

     B -> E

     E -> FG

SECTION B

Question 1.   4

   a. Explain transaction states with figure.
   b. Explain atomicity property of transaction with example.

Question 2. Explain RAID and RAID levels.   4

P.T.O

Page —

Question 1. Given a relational schema of a college, identify and list the type of dependencies. Database is already in 1NF. Assume three records in relation and normalize database up to 3rd Normal Form. You can add new attributes according to your discretion.   6

student (s_id, s_name, c_name, c_id, s_marks, s_address, s_city, s_zip, s_country, s_state, faculty_name, faculty_id, f_specialization).

Note:

Here s_attribute_name is used for attributes related to student.

f_attribute_name is used for attributes related to faculty.

c_attribute_name is used for attributes related to course that a student takes and faculty offers.

Question 2. Consider a schedule S as shown below. Identify whether it is conflict serializable using precedence graph. Here C stands for commit instruction, R(X) and R(Y) stands for read instruction and W(X) and W(Y) stands for write instruction.   4

<center>S</center>

T₁	T₂	T₃	T₄	T₅
		R(X)		
		W(X)		
		C		
	R(X)			
				W(X)
			R(Y)	
R(Y)				
W(Y)				
	W(Y)			
	C			
		R(Y)		
				W(X)

Question 3. Given a relational schema named employee having fields as shown below: 2

E_ID	Emp_Name	Emp_Des	Emp_Age
1.	Manasvi Singh	Sr. Manager	32
2.	Rehan Pandya	DEO	27
3.	Mihir Singh	Supervisor	35
4.	Joy Joseph	Marketing Assistant	30
5.	Lakshman Reddy	Manager	29
6.	Ashish Bansal	Manager	27

Write relational algebra queries for the instructions given below:

a. Rename the relation as emp_details.
b. Find the id and names of employees who are older than 30 years.
c. List names and designation of employees.
d. Find names of employees who are managers.

-------------------End of Question Paper-----------------------

------------------------------------All the Best------------------------------------