MANAV RACHNA
"vidyaparishar"

MANAV RACHNA UNIVERSITY
FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'A' GRADE INSTITUTION
Declared as State Private University under section 2f of the UGC act 1956

DEPARTMENT OF CST

"T2 Examination, October-2018."

Semester:III
Subject:DBMS
Branch:CST
Course Type: Core
Time: 90 Minutes
Max.Marks: 30

Date of Exam. 01/10/2018
Subject Code:CSH205(T)
Session: II
Course Nature:Hard
Program: B.Tech
Signature: HOD/Associate HOD:

Note: *All questions are compulsory. Part A Questions will be of short answer type (10 Marks). Part B: Questions will be of descriptive type or numerical. Each question will be of 10 mark. Attempt any two.*

PART-A

Q1.

Sid	SName	DOB	City
S1	Ram	21-03-82	Chennai
S2	Meera	12-05-86	Chandigarh
S3	Mohan	18-02-88	Faridabad
S4	Rita	19-05-88	Mumbai

Student

Sid	Cid	Course Name
S1	C1	Computers
S2	C2	Physics
S3	C3	Maths
S4	C4	Physics

Course

(a) Referring the above table write the query in domain calculus to retrieve the name of the students who have opted physics course. (2)

(b) Referring the above table in question 1. (a)
Generate the output of $\pi_{sname,\ dob}(\sigma_{s.sid=c.sid}$ (student $\bowtie$ course). (2)

(c) Referring the table in question 1.(a) write SQL queries for following statements.
(i) Get the details of the student who belong to Mumbai. (1)
(ii) Get the details of the courses opted by student id (sid) = 3. (1)

(d) Referring the above table in question 1. (a)
Generate the output for π_{SName} (student * (π_{sid} ($\sigma_{coursename\ =\ computers}$ (course)))). (2)

(e) Consider the following relational schema:
Emp (eid:integer, ename :string, age:integer, salary:real, did:integer)
Dept (did:integer,dname:string,budget:real,managerid:integer)
Write the SQL query for creating **Emp table** with primary key and foreign key constraints. Also salary should be above 5000. (2)

PART-B

Q2. Consider the following relations for a database that keeps track of business trips of salespersons in a sales office:

SALESPERSON (SSN,Name,Start_Year,Dept_No)
TRIP (SSN, From_City, To_City, Departure_Date,Return_Date,Trip_ID)
EXPENSE (Trip_ID,Account#,Amount)

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(a) Specify the foreign keys for the above schema stating any assumptions you make. (1)

(b) Specify the following queries in relational algebra:

(i) Give the details (all attributes of TRIP relation) for trips that exceeded $ 20,000 in expenses. (1)

(ii) Print the SSN of salesman who took to trip Banglore. (2)

(iii) Print the total trip expenses incurred by the salesman with SSN = 12345 (2)

(iv) Give the details of salesperson who all are travelling from Banglore to Mumbai. (2)

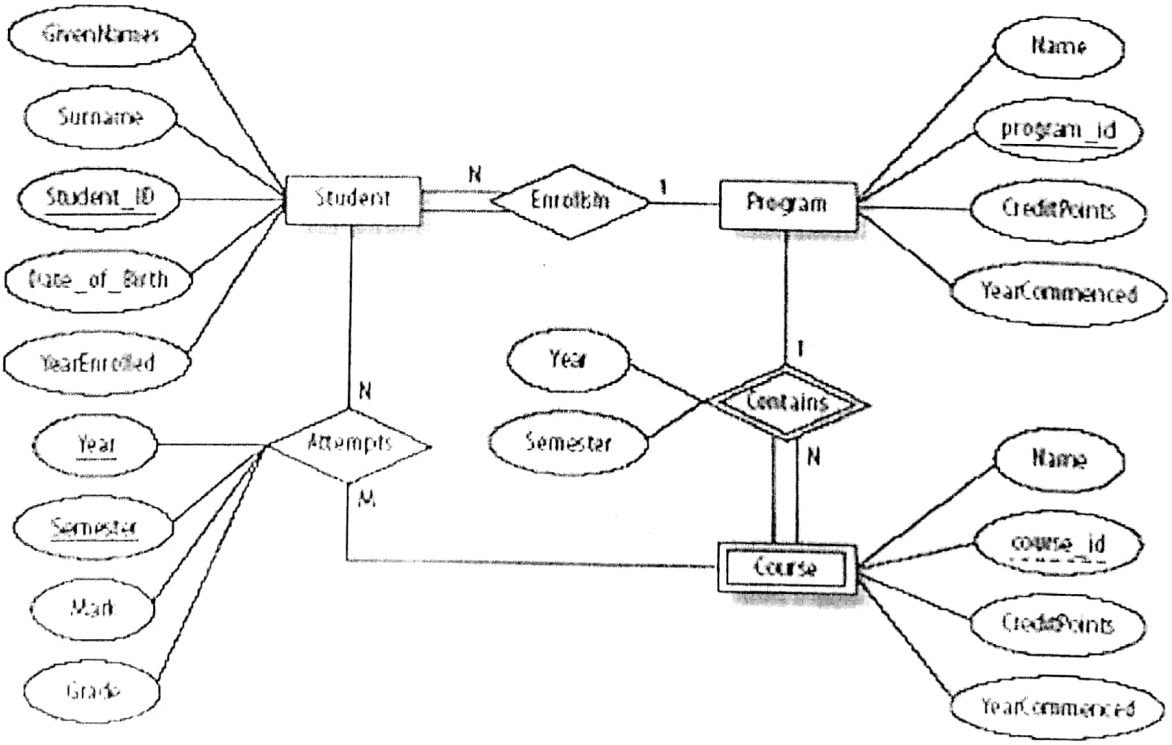
(v) Generate the SSN number of salesperson whose expenses amount is more than 20,000 (2)

Q3. Write the above queries in tuple calculus. (2X5)

Q4. (a) A company database needs to store information about employees (identified by SSN with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments, each department is managed by an employee, a child must be identified uniquely by name when the parent (who is an employee assuming that only one parents works for the company) is known. We are not interested in information about a child once the parent leaves the company.
Draw an ER diagram that captures the above specified information. (6)

(b) Below is the ER diagram of a scenario. Answer the following questions on basis of that:

i. Specify Key and Partial Key Attributes. (1)
ii. Specify strong and weak entity sets. (1)
iii. Specify cardinality ratio and participation between program and course. (2)



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