Indian Institute of Information Technology Sri City, Chittoor

(An Institute of National Importance under an Act of Parliament)

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1. **Database Management Systems**
2. **Mid-Sem Exam**
3. **Duration: 90 Minutes**
4. **Max. Marks: 20**

Name : _____

ID No. : _____

Date : **28 Sept, 2020**

Write your GROUP, NAME and ID No. on the top of all the pages.

- Keep your laptop (backup devices, if any) ready with full charge.
- During the exam, proctoring (video on and no headphones) will be there.
- Please strictly follow the instructions provided by the UG exams.
- Any type of misconduct during the examination is not acceptable and you may be penalized.

Question	Points	Score
1	10	
2	3	
3	4	
4	3	
Total:	20	

GROUP-IV

Closed Book Exam

No questions and doubts in the exam

Evaluation is Binary Marking

(i.e., either full marks or zero marks, and no partial)

(Direct answers will not be awarded any marks)

1. (10 points) This question splits into 10 MCQs each carry one mark, and the same will be shared in google forms as quiz. Choose the correct choice based-on the following schema. Note that there is no negative marks.

   Faculty(<u>fid</u>, fname, dept)
   Course(<u>cid</u>, cname, sem)
   Catalog(<u>fid</u>, <u>cid</u>, cfee)

   Primary key fields are underlined. The fid (faculty id) is the primary key for Faculty, cid (course id) is the primary key for the Course, and fid and cid together form the primary key for Catalog, and this relation lists the fee charged for a course offered by a faculty. Note that fname, dept, cname, sem and cfee respectively represents faculty name, department, course name, semester and course fee.

First 45 minutes
MCQ
(Link Shared in Respective Classroom)

2. (3 points) Let R be a relationship associating with the entities A, B, C, D, E, F, where no arrow on edges of A, C, D, F and arrow edges to remaining entities. Suppose under the meaning 2 of N-ray relations, the primary key of R is (a, b, c, d, f). Assume that the following tuples are inserted:

   - $(a_1, b_2, c_1, d_3, e_2, f_1)$
   - $(a_2, b_2, c_1, d_3, e_2, f_1)$
   - $(a_3, b_2, c_2, d_3, e_2, f_1)$

   Question: Next, insert one-by-one the following tuples and justify your answer in each insertion.

   - $(a_1, b_3, c_1, d_3, e_2, f_2)$
   - $(a_2, b_2, c_1, d_3, e_2, f_1)$
   - $(a_4, b_2, c_2, d_3, e_2, f_3)$

3. (4 points) Given two relations R and S, find the R/S ?

R :

A	B	C	D	E	F
a1	b2	c1	d6	e1	f5
a2	b3	c4	d3	e3	f2
a5	b2	c7	d6	e1	f2
a3	b4	c5	d4	e5	f3
a1	b3	c1	d3	e1	f4
a5	b5	c7	d1	e6	f6
a4	b2	c4	d5	e5	f2
a5	b3	c7	d3	e3	f2
a7	b6	c6	d3	e4	f4
a5	b4	c7	d3	e3	f2
a3	b3	c1	d2	e5	f3
a5	b4	c1	d3	e1	f2

S :

B	D	E
b2	d6	e1
b3	d3	e3
b4	d3	e3

4. (3 points) Given R and S, find the natural join $R \bowtie S$?

R :

A	B	C	D
a1	b1	c1	d3
a2	b3	c2	d3
a3	b2	c4	d6

S :

B	D	E
b2	d6	e1
b3	d3	e3
b4	d3	e3