INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY, SHIBPUR

B. Tech.(IT) 5th Semester Mid Semester Examination, 2021

Database Management System (IT-3103)

Full marks: 30   Time: 45 Minutes

Answer Question no. 4 and any two from the rest

1. Describe the advantages of DBMS over file processing with respect to redundancy. What is Symmetric query? Describe the difference between logical and physical data independence.

   4+2+4

2. What is the need of composite attribute in E-R diagram? What is the role of cardinality ratio in E-R diagram? Why is specialization considered in data modeling?

   3+2+5

3. Describe the properties of relation in relational database. Explain the entity integrity and referential integrity constraints with example.

   4+6

4. Consider the following relations:
   Employee (<u>eno</u>, ename, dnum, sex, city, salary)
   Dept (<u>dnum</u>, dname, city)
   Dependent (<u>eeno,depen_name,</u> relation)

Write the queries in relational algebra.
 a) Find the name of employees who live in same city as their department.
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Write the query in SQL.
 b) Find out the department wise number of employees only for the departments for which total salary is more than 50000.

Write the query in tuple relational calculus.
 c) Retrieve the name of employees who have no dependents.

   3+4+3

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