CLASS: IMSC   SEMESTER: V
BRANCH: MATHS & COMP.   SESSION : MO/2018

SUBJECT : CS4105 DATABASE MANAGEMENT SYSTEM

TIME: 1.5 HOURS   FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) Draw a diagram to show a simplified database system environment.   [2]
    (b) What are the advantages of using Database approach over file approach. Also write the   [3]
         situation in which using database approach is not appropriate.

Q2 (a) What is The Three Schema Architecture? Explain using diagram.   [2]
    (b) Explain the   following using proper examples: [3]
         (i) Entity Types   ii) Relationship Instances iii) Participation constraints

Q3 (a) Discuss the following: i) Data Model ii) Foreign key   [2]
    (b) Draw a schema diagram for University Database.   [3]

Q4 (a) What do you mean by Specialization and Generalization in E-R model? Explain using   [2]
         example.
    (b) Explain various Outer Join operations in relational algebra using suitable relations. [3]

Q5 (a) Write appropriate sql to create the following with constraints (Choose suitable foreign [2]
         keys):
         employee(person_name,street,city)
         works(person_name,company_name, salary)
         company(company_name, city)
         manages(person_name,manager_name)
    (b) Write SQL for the following queries based on the above schemas: [3]
         i)   Find the names of all employees who do not work for 'xyz'company.
         ii) Find the names of all employees who earn more than every employee of 'xyz'
              company.

Q6 (a) Books(isbn,title,authors,publisher)   [2]
         Member(memb_no,name,dob)
         Borrowed(memb_no,isbn, date)
         Consider the above relational schema to write relational algebraic expressions for the
         following queries:
         i)Find the names of the members who have borrowed any book published by 'McGraw-Hill'
         ii)Find the names of members who have borrowed all books published by 'McGraw-Hill'
    (b) Write the relational algebraic expression for the following queries based on the above   [3]
         schemas:
         i)   Find the names and member number of members who have borrowed more than
              five books published by 'McGraw-Hill'
         ii) For each publisher , find name and membership number of members who have
              borrowed more than five books of that publisher.