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Roll No .....

IT-4002 (CBGS)

B.E. IV Semester

Examination, May 2018

Choice Based Grading System (CBGS)

Database Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is the difference between database user and database administrator? Explain various functions of database administrator. 7
   b) Draw and discuss three levels of Database Management System. 7

2. a) What is Relational Algebra? Enlist and explain the fundamental operations of Relational Algebra. 7
   b) Explain disadvantages of conventional file based system compared to Database Management System. 7

3. a) Define E-R diagram. Draw an E-R diagram for library management system. Assume relevant entities and attributes for given system. 7
   b) What is aggregate function? Explain any five aggregate functions with example. 7

4. a) What are integrity constraints? Explain various types of integrity constraints with suitable example. 7
   b) Discuss various types of joins with suitable example. 7

5. a) Write SQL statement for the following: 7
   Student (Enrno, Name, CourseID, EmailID, CellNo.)
   Course (CourseID, Course-nm, duration)
   i) Add a column city in student table
   ii) Find out list of students who have enrolled in "Computer" course.
   iii) List name of all course with their duration
   iv) List name of all students starting with "a".
   v) List EmailID and cellno of all mechanical engineering students.
   b) Give a brief note on query processing and query optimization. 7

6. a) What is normalization? Why is it required? Explain 1NF, 2NF and 3NF with suitable example. 7
   b) What is concurrency control? What are the recovery techniques to overcome from concurrency? 7

7. a) Suppose that we decompose the scheme R = (A, B, C, D, E) into (A, B, C) and (A, D, E). Show that this decomposition is a lossless join decomposition if the following function dependency hold: $A \rightarrow BC$, $CD \rightarrow E$, $B \rightarrow D$ 7
   b) Define transaction Discuss ACID proportion of a transaction with relevant example. 7

8. Write short notes: 14
   a) Distributed databases
   b) Two phase locking protocol
   c) Log based recovery

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