Printed Pages : 4

Roll No.

322556(22)

BE (5th Semester)
Examination, Nov.-Dec., 2017

(New Scheme)

Database Management System

Time Allowed : 3 hours *Maximum Marks* : 80
Minimum Pass Marks : 28

Note : (*i*) Part *(a)* of each question is compulsory and attempt any **two** parts from *(b)*, *(c)* and *(d)* of each question.

(*ii*) The figures in the right-hand margin indicate marks.

1. *(a)* Define schema. [2]

(b) Draw and explain ANSISPARC 3-tier architecture of DBMS. [7]

(c) Design a generalization-specialization hierarchy for a motor vehicle sales company. The company sells motorcycles, passenger cars, vans and buses. Justify your placement of attributes at each level of the hierarchy. Explain why they should not be placed at a higher or lower level. [7]

(d) What do you mean by data independence? Explain logical and physical data independence with example. [7]

2. *(a)* Define RDBMS. [2]

(b) Define the primary key. Explain the following relational operations with suitable example : [7]

(i) Select
(ii) Project
(iii) Union
(iv) Intersection
(v) Division

(c) Define join operation in relational algebra. Explain all join operations with suitable example. [7]

(d) Consider the following relational database and give an expression to express each of the following queries :

employee (Person name, Street, City) works (Person name, Company name, Salary) company (Company name, City) manager (Person name, Manager name)

(i) Find the names of all employees who work for first bank corporation. [1]

(ii) Find the names and cities of residence of all employees who work for first bank corporation. [2]

(iii) Find the names and cities of residence of all employees who work for first bank corporation and earn more than $ 10,000 per annum. [2]

(iv) Find the names of all employees in this database who do not work for first bank corporation. [2]

3. (a) Define data definition language. [2]

(b) Explain the concept of referential integrity. [7]

(c) What do you mean by triggers? Explain. [7]

(d) Explain cursor with example. [7]

4. (a) Define transitive functional dependency. [2]

(b) Define normalization. Explain 1NF and 2NF with suitable example. [7]

(c) What do you mean by transaction processing? Explain states of transaction processing. [7]

(d) Compute the closure for relational schema :

$R = \{A, B, C, D, E\}$

$A \rightarrow BC,\ CD \rightarrow E,\ B \rightarrow D,\ E \rightarrow A$

Find key attribute of R. Also find all candidate keys. [7]

5. (a) Define system crash. [2]

(b) Define recovery. Explain log based recovery. [7]

(c) Define the organization. Explain primary file organization. [7]

(d) Explain record structure. [7]

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