2015

COMPUTER SCIENCE & TECHNOLOGY

Paper : 1.4/405

ADVANCED DBMS

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

1 Distinguish between the following: 2×5=10

(i) Stored versus derived attributes

(ii) 3NF and BCNF

(iii) Relational schema and Relational state

(iv) Equijoin and natural join operation in relational algebra

(v) Single valued and multi-valued attributes

2 Describe advantages of using DBMS approach. 10

3 Draw an ER Diagram for University maintaining the enrolment and examination control using different necessary entities and attributes. (Use primary key, foreign key, etc.) 10

4 What is a join? Explain various types of join with example.

Or

Explain the following relational algebra operations:

(i) Union (ii) Rename (iii) Project 2×3=6

5 What is Functional Dependency? Define minimal cover. Find the minimal cover of the set of functional dependency

$E: \{B \rightarrow A,\ D \rightarrow A,\ AB \rightarrow D\}$

Or

Describe the concept of transitive dependency and explain how this concept is used to define 3NF. 10

6 Given the following table: 2×4=8

Employee (EmpNo, Ename, DoB, Sex,home, city, BRNo)Branch (BRNo, BRNAME, city, MgrNo, DIVNo)Division (DIVNo, Div, Name)

Salary(EmpNo, Date, Salary)

Write SQL statements for the following queries:

(i) For each branch get the branch name and total number of employees working in the branch

(ii) How many female employees are there in the branch B1?

Write statements in relational algebra for the following queries:

(iii) Get names of all employees whose home city is Kokrajhar.

(iv) Get details of the branch in which employee number E10 is working.

7 (i) Explain the desired properties of transaction. 4+4=8

(ii) What are the differences between the lost update problem and the dirty read problem? Explain with example.

8 Describe the informal guidelines for relational schema. 8

9 Explain the procedure to test the conflict serializability of a schedule with a suitable example. 10

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