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4 SEM BCA (CBCS) DBMS 2

2019

(June)

COMPUTER APPLICATION

Paper : 4·2

(DBMS)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following : 1×5=5

   (a) Write *two* uses of normalization.

   (b) Define tuple of a relation.

   (c) Write *two* functions of DBA.

   (d) Define a foreign key.

   (e) Give an example of a weak entity.

Contd.

2. Answer the following: 2×5=10

(a) State *two* differences between primary key and foreign key.

(b) Define specialization with example.

(c) State *two* disadvantages of network data model.

(d) Define the types of database security.

(e) Define different types of cardinality ratio with example.

3. Answer ***any five*** of the following: 3×5=15

(a) Define outer join. What are left outer join and right outer join?

(b) Explain the unary operations of relational algebra.

(c) Explain insertion anomaly with example.

(d) Describe the characteristics that distinguish a DBMS from a traditional file processing system.

(e) Explain the process of 2PL.

(f) Differentiate between a serial schedule and a nonserial schedule.

4. Consider the following relations for

STUDENT (Roll no, Name, DOB)

SUBJECT (Scode, Sname)

Result (Roll no, Scode, Mark)

Write SQL query for the following:

(i) Display total number of students who have scored above 75 in DBMS.

(ii) Add a new column class in student.

(iii) Display the name of the student who scored less than 40 marks in Java.

(iv) Display roll number of all the students who appeared in exam. for the subject 'Operating System'.

(v) Display the name of all the students whose name have 'a' as third character.

2×5=10

5. (a) Draw an E–R diagram for an insurance company that specializes in providing insurances in categories of life insurance, health insurance and general insurance. The company has a number of schemes for different categories of customers.

Make you own assumptions. 5

(b) Write commands for the following using relational algebra operator :

EMPLOYEE (Eid, name, Address, Salary)

(i) Find employee details whose eid is 4.

(ii) Find employee details whose salary is less than 4000 and address is Tezpur. 5

(iii) Find name and address of all employees.

(iv) Display maximum salary.

(v) Display name and salary whose Eid = '01' 5

6. Answer ***any two*** of the following : 5×2=10

(a) Compare among 1NF, 2NF and 3NF. 5

(b) State the objective of serializibility for the following schedule : 2+3=5

$S : R_2(A); W_2(A); R_1(A), W_1(A), R_1(B); W_1(B), R_2(B), W_2(B)$

Write down the transactions involved. Also find the conflict operations.

(c) Check whether the schedule is conflict serializable or not : 5

$S_1 : r_2(A); r_1(B); W_2(A); r_3(A); W_1(B); W_3(A); r_2(B); W_2(B)$