Total number of printed pages–4

4 SEM BCA (CBCS) DMS 4·2

2024

(June)

COMPUTER APPLICATION

Paper : 4·2

(Database Management System)

Full Marks : 60

Time : Three hours

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

1. Fill in the blanks : 1×5=5

   (a) The _____ of a relationship type is the number of participating entity types.

   (b) The description of a database is called _____.

   (c) Third normal form is based on the concept of _____.

   (d) An attribute is called a prime attribute if it is a member of some _____ key.

Contd.

(e) The only attribute value permitted by first normal form are _____.

2. Answer the following : ***(any five)*** 2×5=10

(a) State the desirable properties of transaction.

(b) Find the conflict operations from the schedule

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

(c) What is lost update problem ?

(d) State the difference between key and superkey.

(e) State *two* advantages of normalization.

(f) What is functional dependancy ?

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

(a) Briefly explain the types of failures.

(b) State the difference between full functional dependancy and partial dependancy using suitable example.

(c) Explain deletion anomaly with a suitable example.

(d) Briefly explain the referential integrity constraint.

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

(f) Explain specialization with a suitable example.

4. (a) Draw an E-R diagram for the situation given below :

Library consists of many books in different subject areas where books are written by different authors and published by different publishers. There are inside members and outside members who get books issued for their uses. The issuing and return operation of the books are managed by the librarians. 7

(b) Consider the following relations for database (write codes for the tables) :

Student (Roll no, Name, DOB)

Subjects (Scode, Sname)

Result (Rollno, Scode, Marks) 3

Write SQL query for the following :

(i) Find the total no of students who have scored less than 30 marks in DBMS. 3

(ii) Add a new column semester in student. 2

(iii) Find the names of the students who scored above 80 marks in Java. 2

(iv) Display the name of all the students whose names have 'p' as third character. 3

5. Write commands for the following using relational algebra operator :

Student (Roll, Name, Address, Marks)

(a) Find student details whose Roll is 4. 1

(b) Find student details whose marks is less than 70 and address is 'DIBRUGARH'. 1

(c) Rename student to student_details and name to student_name. 2

6. Briefly explain the weak entity, strong entity, identifying relationship with a suitable example. What is the significance of total participation ? 5+1=6

Or

Define ~~network~~ model. Explain the various types of ~~network~~ model. 1+5=6
