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44 (3) DBMN BCA-HC-3036

2021

(Held in 2022)

DATABASE MANAGEMENT SYSTEM

Paper : BCA-HC-3036

Full Marks : 60

Time : Three hours

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

1.

1×5=5

- (a) Define database with an example.
- (b) What do you mean by candidate key ?
- (c) What is the full form of DFD ?
- (d) What do you mean by referential integrity ?
- (e) Define BCNF.

2.

2×5=10

- (a) What do you mean by fixed length records and variable length records ?

Contd.

- (b) Define strong entity and weak entity.
- (c) Write *two* advantages of DBMS over file-based approach.
- (d) Define 1st level DFD and 2nd level DFD.
- (e) What do you mean by functional dependency ?
3. (a) What do you mean by theta join and equi join ? 2
- (b) Briefly explain the different role of DBA. 3
4. (a) Differentiate between DOL and DML. 2
- (b) Briefly explain the DBMS 3 level architecture with diagram. 8

Or

Briefly explain the advantages and disadvantages of DBMS.

5. Explain the different steps for converting ER model into relational schema with proper example. 10

Or

Explain the different types of normalization with proper example.

6. Given the following tables

STUDENT (Std_id, Std_name, Std_address, Std_DOB, Std_ph no, dept_id)

DEPARTMENT (dept_id, dept_name, dept_location, Course_id)

COURSE (Course_id, Course_name)

Write the SQL commands for the following queries —

- (a) Create the above tables with proper primary key and foreign key. 2
- (b) List the name of the students whose date of birth is less than "01-01-2000". 1
- (c) Get details of all student who are admitted in "BCA" department. 1
- (d) Get details of courses in which student "Raj" is admitted. 2
- (e) Get the name and address of the student whose name start or end with letter "G". 1

(f) How many students are admitted in Course-id "C1". 2

(g) Get details of all departments. 1

7. Given the following tables :

EMP (E_id, E_name, E_DOB, E_salary, E_address)

DEPT (D_id, D_name, D_loc, E_id)

Write the relational algebra for the following queries —

(a) List the address of the employees whose salary is greater than "20,000". 2

(b) Get details of the department in which E_id 'E 10' and 'E 20' is working. 2

(c) Get the name of the department. 1

8. Briefly explain the different constraints with examples. 5

Or

Define Record Blocking. Briefly explain the different operations on file. 2+3=5