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Roll No.

1291

B. C. A. (Third Semester)

EXAMINATION, 2023-24

**INTRODUCTION TO DATABASE
MANAGEMENT SYSTEMS**

Course Code : BCA-302T

Time : Three Hours

Maximum Marks : 75

Note : (i) All questions are compulsory.

(ii) Answer each part of the first question in not more than 100 words and the remaining questions in 800 words.

(iii) Marks are mentioned against the questions.

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1. Answer each of the following questions :

3×5=15

- (a) What are the characteristics of a good DBMS ?
- (b) What is difference between candidate key and primary key ?
- (c) List the characteristics of SQL.
- (d) Differentiate between physical and logical data independence.
- (e) Explain entities and attributes.

2. Answer the following questions :

15

- (a) What is database ? Compare database approach and file system approach. Also explain 3-level System Architecture of DBMS.

Or

- (b) Discuss the E-R model. Draw an E-R diagram for Payroll System with all the relation and their attributes which you feel will be required for Payroll System.

3. Answer the following questions : 15

(a) What is normalization ? When is normalization done ? Explain different normal forms with suitable example.

Or

(b) What is Relational Algebra ? Discuss the various operators used in Relational Algebra. Also discuss how it is different from relational calculus.

4. Answer the following questions : 15

(a) Explain any *two* of the following with suitable example :

(i) SQL data types

(ii) SQL operators and their precedence

(iii) Embedded SQL

Or

(b) Consider the following tables :

PHYSICAN (reg_no, name, address, ph_no)

PATIENT (pt_name, address)

VISITS(reg_no, pt_name, date_of_visits, fees_charged)

Answer the following SQL queries :

(i) Display the name, phone no. of all physicians who have been visited by at least one patient.

(ii) Display the pt_name and pt_address of the patients who have visited more than one physician in the month of October 2023.

5. Answer the following questions : 15

(a) Explain any *two* of the following in detail :

(i) Integrity constraints

(ii) Database backup

(iii) Data security risk

Or

(b) Define database recovery. What do you mean by forward recovery and backward recovery ? What are the various recovery data collection techniques ?