2023

(May)

COMPUTER APPLICATION

Core Course

(*Database Management System*)

Course Code : **BCA-CC-T4-403**

Credit : **4**

Total Marks : 56

Time : $2^1/_2$ Hours

The figures in the margin indicate full marks for the questions

1. Answer all questions : 1×6=6

(a) Which of the following is not on ACID property ?

(*i*) Atomicity (*ii*) Concurrency

(*iii*) Isolation (*iv*) Durability

(b) A database is an organised collection of –

(*i*) Data (*ii*) Attributes

(*iii*) Record (*iv*) ER

(c) In SQL, which command is used to remove a stored function from the database –

(*i*) RELEASE FUNCTION (*ii*) DELETE FUNCTION

(*iii*) REMOVE FUNCTION (*iv*) DROP FUNCTION

Contd 2

(d) DBMS stands for –

(i) Data Backup Management System

(ii) Database Maintenance System

(iii) Database Management Service

(iv) Database Management System

(e) A record in a relational database is referred as –

(i) Schema (ii) Relation

(iii) Attribute (iv) Tuple

(f) What is the full form of SQL ?

(i) Standard Query Language

(ii) Structured Queue Language

(iii) Standard Queue Language

(iv) Structured Query Language

2. Answer the following questions : 5×2=10

(a) What is meant by weak entity and how its key is chosen ?

(b) Differentiate between 3NF and BCNF.

(c) How EER is related to ER diagram ?

(d) Define Instances and Schemas.

(e) What is concurrency control ?

Contd 3

3. Answer ***any three*** of the following : 3×4=12

(a) What is attribute ? Define various types of attributes with examples.

(b) Give a relation, R(A, B, C, D, E, F) Functional Dependencies are, –

$$F=\{A\rightarrow B, CD\rightarrow A, CB\rightarrow D, AE\rightarrow F, CE\rightarrow D\}$$

Is *r* In 3NF ?

(c) What is meant by entity integrity constraints and referential integrity constraints.

(d) What are different states of transactions ?

(e) Explain different operations on files.

4. What is the purpose of Normalization ? Describe various forms of Normalization. 2+5=7

5. (a) What are the different types of file , indexing structures ? Explain each type briefly. 7

Or

(b) Define database. Write some application areas of DBMS. Compare between file processing system and DBMS. 2+2+3=7

6. (a) What is atomicity in DBMS ? How is durability maintained in database ? What are the sufficient conditions to achieve the ACID properties ? 2+2+3=7

Or

Contd 4

(*b*) Compare Super Key, Candidate Key and Primary Key. Explain the concepts of a composite attribute and a derived attribute with an example.

7. (*a*) What is the purpose of SQL in DBMS ? Explain different unary operations in Relational algebra. 7

Or

(*b*) What is an ER model ? What are the types of relationship ? Give an ER diagram for a database showing student, course, depertment and University.