End Sem(IV) —
BCA (CC – 10)

2022

Time : 3 hours

Full Marks : 60

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Compulsory)

1. Answer the multiple choice questions :

1×10 = 10

(a) Database _____ which is the logical design of the database, and the database _____ which is a snapshot of the data in the database at a given instant in time.

(i) Instance, Schema

(ii) Relation, Schema

(iii) Relation, Domain

(iv) Schema, Instance

(b) The tuples of the relations can be of _____ order.

  (i) Any

  (ii) Same

  (iii) Sorted

  (iv) Constant

(c) _____ states that only valid data will be written to the database.

  (i) Consistency

  (ii) Atomicity

  (iii) Durability

  (iv) Isolation

(d) All lock information is managed by a _____ which is responsible for assigning and policing the locks used by the transactions.

  (i) Scheduler

(ii) DBMS

(iii) Lock manager

(iv) Locking agent

(e) In the _____ normal form, a composite attribute is converted to individual attributes.

  (i) First

  (ii) Second

  (iii) Third

  (iv) Fourth

(f) Which is a bottom-up approach to database design that design by examining the relationship between attributes :

  (i) Functional dependency

  (ii) Database modeling

  (iii) Normalization

  (iv) Decomposition

(g) The total participation by entities is represented in E-R diagram as :

  (i) Dashed line

  (ii) Double line

(iii) Double rectangle

(iv) Circle

(h) Key to represent relationship between tables is called :

(i) Primary Key

(ii) Secondary Key

(iii) Foreign Key

(iv) None of the mentioned

(i) An entity in A is associated with at most one entity in B, and an entity in B is associated with at most one entity in A. This is called as :

(i) One-to-many

(ii) One-to-one

(iii) Many-to-many

(iv) Many-to-one

(j) An _____ consists of a search-key value and pointers to one or more records with that value as their search-key value.

(i) Index entry

(ii) Index hash

(iii) Index cluster

(iv) Index map

2. Draw any ER Diagram which demonstrates the following : 1×5 = 5

(a) Entity

(b) Attribute

(c) Multi-valued attribute

(d) Composite attribute

(e) Derived attribute

Group – B

Answer any **three** of the following : 15×3 = 45

3. What is DBMS ? Explain the architecture of DBMS, using a diagram.

4. What is Normalization ? Discuss the 1st, 2nd, 3rd and BCNF normal forms.

5. What are integrity constraints ? Why they are important, discuss any five with example.

6. What is ACID properties ? Discuss various concurrency control management techniques.

7. Why is indexing required for a Database ? Explain multi-level indexing. Is it true that all the levels of multi-level index are primary index ? Discuss.

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