

Database Management Systems (BCA-302)

Duration: 2 hours

Max. Marks:50

**Instructions:**

Figures to the right indicate maximum marks.

Start each question on a fresh page

All questions are compulsory

**Q.1 A) Briefly explain the following in one or two sentences.**

**(5\*1=5)**

- a) Database index
- b) Foreign key
- c) Database server
- d) Clusters
- e) Domain constraint

**B) State whether the following statements are true or false.**

**( 5\*1=5)**

1. In a three-tier architecture, application interface programs like ODBC and JDBC are used for communication between the client and server.
2. Data mining is a repository of information gathered from multiple sources.
3. In generalization, number of entity sets having similar features are combined into a higher-level entity set.
4. In partial participation, every entity of the entity set participates in at least one relationship in the relation set.
5. A serial schedule is the one that does not interleave the actions of different transactions.

P.T.O



**Q.2 Answer the following**

- a) Briefly explain routine maintenance feature of a DBA. (2)
- b) Explain any three applications of data warehousing. (3)
- c) Discuss the advantages and dis-advantages of client-server platforms. (5)

**Q.3 Answer the following**

- a) Briefly explain the different attributes an entity can have. (2)
- b) Explain the concept of a weak entity with an example. (3)
- c) Model an E-R diagram for a car rental system. Make assumptions wherever necessary. (5)

**Q.4 Answer the following**

- a) What do you understand by a join dependency? (2)
- b) Explain the anomalies in database design. (3)
- c) Define 3NF and decompose the following relation upto 3NF. (5)

Supplier(supplier\_no, item\_no, consignment\_num, quantity, status)

Key  $\rightarrow$  { supplier\_no, item\_no }

{ supplier\_no, item\_no }  $\rightarrow$  { quantity }

{ supplier\_no }  $\rightarrow$  { status }

{ supplier\_no }  $\rightarrow$  { consignment\_num }

{ consignment\_num }  $\rightarrow$  { status }

**Q.5 Answer the following**

- a) Briefly explain atomicity and durability properties of a transaction. (2)
- b) Define locks. Explain the different lock modes. (3)
- c) Discuss the characteristics of a mobile database along with the challenges faced. (5)

\*\*\*\*\*Best of luck\*\*\*\*\*