



# BRAINWARE UNIVERSITY

Course – MAMW

Database Management Systems (MMW104)

(Semester – 1)

**Time allotted: 3 Hours**

**Full Marks : 70**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

## Group –A

(Multiple Choice Type Question)

1. Choose the correct alternatives for the following: 1 × 10 = 10

i) Which of the following can be a multi valued attribute?

- |                  |                         |
|------------------|-------------------------|
| a) Phone_number  | b) Name                 |
| c) Date_of_birth | d) All of the mentioned |

ii) Which of the following is a single valued attribute

- |                    |              |
|--------------------|--------------|
| a) Register_number | b) Address   |
| c) SUBJECT_TAKEN   | d) Reference |

iii) The function that an entity plays in a relationship is called that entity's \_\_\_\_\_.

- |                  |             |
|------------------|-------------|
| a) Participation | b) Position |
| c) Role          | d) Instance |

iv) In SQL the spaces at the end of the string are removed by \_\_\_\_\_ function.

- |          |           |
|----------|-----------|
| a) Upper | b) String |
| c) Trim  | d) Lower  |

v) Dates must be specified in the format.

- |             |               |
|-------------|---------------|
| a) mm/dd/yy | b) yyyy/mm/dd |
| c) dd/mm/yy | d) yy/dd/mm   |

vi) A table on the many side of a one to many or many to many relationship must:

- a) Be in Second Normal Form (2NF)
- b) Be in Third Normal Form (3NF)
- c) Have a single attribute key
- d) Have a composite key

vii) Which-one of the following statements about normal forms is FALSE?

- a) BCNF is stricter than 3 NF
- b) Lossless, dependency -preserving decomposition into 3 NF is always possible
- c) Loss less, dependency – preserving decomposition into BCNF is always possible
- d) Any relation with two attributes is BCNF

viii) Which of the following is not a property of transactions?

- |              |                          |
|--------------|--------------------------|
| a) Atomicity | b) Concurrency           |
| c) Isolation | d) None of the mentioned |

ix) Constraint checking can be disabled in existing \_\_\_\_\_ and \_\_\_\_\_ constraints so that any data you modify or add to the table is not checked against the constraint.

- a) CHECK, FOREIGN KEY
- b) DELETE, FOREIGN KEY
- c) CHECK, PRIMARY KEY
- d) PRIMARY KEY, FOREIGN KEY

x) SQL can be used to:

- a) Create database structures only.
- b) Query database data only.
- c) Modify database data only.
- d) All of the above can be done by SQL

**Group – B**

(Short Answer Type Question)

Answer any *three* of the following. $3 \times 5 = 15$ 

- 2) What are the advantages of using DBMS over file system? 5
- 3) Explain Generalization and Specialization with example. 5
- 4) What is Candidate Key? Write an example of Candidate Key. 2+3
- 5) Compare 3NF and BCNF with example. 5
- 6) Explain DKNF with example. 5

**Group – C**

(Long Answer Type Question)

Answer any *three* of the following. $3 \times 15 = 45$ 

- 7) a) What is a Lossless join decomposition? Give proper explanation with an example. 2+3  
 b) What is total participation in E-R diagram? Write down the concept of mapping cardinality and degree of a relationship with explanation. 2+3  
 c) Define Functional Dependency with example, 5
- 8) a) What is Transaction? 5  
 b) Explain ACID property of Transaction 5  
 c) Define Serial, Concurrent and Parallel Transaction. 5
- 9) a) What is Normalization? Give an example. 5  
 b) Explain Database anomalies with example. 5  
 c) Describe BCNF with example. 5
- 10) a) What is Two Phase Commit Protocol? 5  
 b) Explain concurrency control technique? 5  
 c) Define functional dependency with example. 5
- 11) Write short notes on any three of the following  $3 \times 5$   
 a) Super Key  
 b) Immediate Update and Deferred Update  
 c) PL/SQL  
 d) Strict 2PL