	Utech
Name:	<u>A</u>
Roll No.:	In Spanning (VE) may being a Teach of the
Invigilator's Signature :	

# CS / B.TECH (BT-NEW) / SEM-4 / CS-415(BT) / 2011 2011

# DATABASE MANAGEMENT SYSTEM & COMPUTER NETWORKING

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

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

# GROUP - A ( Multiple Choice Type Questions )

- 1. Choose the correct alternatives for the following:  $10 \times 1 = 10$ 
  - i) Host to host connectivity is provided by
    - a) Network layer
- b) Session layer
- c) Data link layer
- d) Transport layer.
- ii) The conceptual view is
  - a) how the data is actually stored
  - b) how the DBA views it
  - c) how the customer views it
  - d) how the database is designed.

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Which is not true for Primary key? iii) Give preference to numeric column (s) b) Give preference to single attribute Give preference to minimal composite key c) Give preference to weak entity. d) Which is not the property of ACID? iv) Atomicity Concurrency a) b) Isolation Durability. c) d) Which is the demerit of Normalization? v) Normalization is based on a mathematical a) foundation Removes the redundancy to a greater extent. After b) 3NF, data redundancy is minimized to the extent of foreign keys Data retrieval of SELECT operation performance c) will be severally affected Removes the anomalies present in INSERTs, d) UPDATEs and DELETEs. Which data type is not supported by Oracle? vi) a) Number Char Varchar2 c) d) Float. The IP address 192.168.10.29 belongs to a) Class A Class B b)

Class C

DDL statement

DCL statement

c)

a) c)

viii) DELETE is a

Class D.

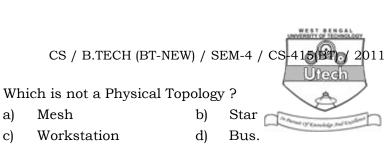
DML statement

none of these.

d)

b)

d)



- How many layers are there in TCP/IP model? x)
  - 5 a)

a)

c)

ix)

7 b)

8 c)

9. d)

#### **GROUP - B**

### (Short Answer Type Questions)

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

- 2. What are Armstrong axioms? a)
  - b) Prove union, decomposition rule and pseudo transitivity using Armstrong axioms.
- What is the difference between candidate key, unique 3. a) key and primary key?
  - b) What is the disadvantage of Cartesian product and how to recover from it? 3 + 2
- 4. a) What is view?
  - What are weak entity set and strong entity set? Provide b) examples.
- 5. Draw the three layer architecture of DBMS. Describe each layer in brief.
- What is the difference between centralized and 6. distributed database?
  - What do you mean by simplex, half-duplex and full b) duplex? 2 + 3

#### GROUP - C

# (Long Answer Type Questions)

Answer any three of the following.

 $3 \times 15 = 45$ 

- 7. Explain the difference between traditional file system a) and DBMS.
  - Draw and explain different data models. b)
  - Explain simple outer join, left outer join, right outer c) join with examples. 4 + 6 + 5

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- 8. a) What is E-R model?
  - b) Construct a university *E-R* model. Try to include the constraints in the *E-R* model :

Department (Dept.Name, HOD, LOC)

Course (Course.Name, Course.ID)

Teacher (Dept.Name, Teacher.Name, Teacher.ID)

Student (Student.Name, Roll.NO, Reg.NO,

Email.ID, Contact.NO)

Marks (Total\_Marks, Marks\_Obtain, Grade)

- c) What is serializability? Explain conflict and view serializability. 2 + 8 + 5
- 9. a) What is the difference between Delete and Truncate in SQL?
  - b) Describe different aggregate functions in SQL with some examples.
  - c) Draw the state diagram of Transaction and describe different states. 3 + 6 + 6
- 10. a) Describe OSI seven-layer model.
  - b) Indicate difference between LAN, MAN and WAN.
  - c) What are the different line coding technique?

    Represent 111001100101in RZ, NRZ, Manchester and Differential Manchester encoding technique.

7 + 2 + 6

 $3 \times 5$ 

- 11. Write short notes on any *three* of the following :
  - WWW
  - b) URL

a)

- c) Electronic Mails
- d) DBA
- e) Search Engines.

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