



Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH/BT (NEW)/SEM-6/CS-615/2013

2013

**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 any *ten* of the following :

10 × 1 = 10

- i) Which of the following is not a level of data abstraction ?
 - a) Physical level b) Logical level
 - c) Critical level d) View level.
- ii) In an ER diagram rectangle represents
 - a) Attribute b) Relation
 - c) Entity d) Key.
- iii) The layer handles the creation of data frames.
 - a) Data Link b) Network
 - c) Transport d) Physical.



- iv) The feature that database allows to access ~~only~~ certain records in database is
- a) Forms b) Reports
- c) Queries d) Tables.
- v) What type of relationship exists between a Teacher table and a Class table ?
- a) One to many b) Many to many
- c) One to one d) Two to two.
- vi) The physical layer is responsible for the transmission of which over the physical medium ?
- a) Packets b) Bits
- c) Message d) All of these.
- vii) Port addressing is the responsibility of
- a) Data link layer b) Transport layer
- c) Both (a) & (b) d) Application layer.
- viii) Flow control is the responsibility of
- a) Data link layer b) Transport layer
- c) Both (a) & (b) d) Application layer.
- ix) A normal form in which every determinant in a key is
- a) 2NF b) 3NF
- c) BCNF d) 4NF.



- x) Which topology requires a central controller or Hub ?
- a) Mesh b) Star
- c) Bus d) Ring.
- xi) The ability to modify the internal schema without causing any change to the external schema is
- a) Physical data independence
- b) Logical Data independence
- c) External Data independence
- d) none of these.
- xii) A telephone network is an example of a network.
- a) Packet-switched b) Circuit-switched
- c) Message-switched d) None of these.

GROUP – B

(Short Answer Type Questions)

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

2. BCNF is stronger than 3NF. Justify your answer.
3. Define the concept of aggregation. Give an example where the concept is useful.
4. Explain the Half-duplex mode of data flow. What do you mean by wavelength of a signal ?



5. What is transaction ? Write the ACID properties of transaction.
6. Differentiate between OSI model and TCP/IP model.

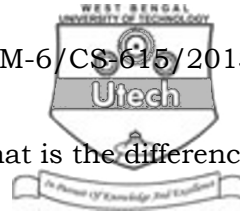
GROUP – C

(Long Answer Type Questions)

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

7. a) What are the fundamental operations in Relational Algebra ?
- b) Draw an E-R diagram for the following “miniworld”:
- i) Each supplier has a unique name.
 - ii) More than one supplier can be located in the same city.
 - iii) Each part has a unique part number.
 - iv) Each part has a colour.
 - v) A supplier can supply more than one part.
 - vi) A part can be supplied by more than one supplier.
 - vii) Be sure to identify the kind of relationship.

5 + 10



8. a) What do you mean by Switching ? What is the difference between amplifier and repeater ?
- b) Differentiate between circuit switching and packet switching.
- c) What is Bridge and Router ? 2 + 3 + 5 + 5
9. a) Create a database called COMPANY consisting of two tables – EMP & DEPT

EMP

Column name	Data type	Description
EMPNO	Number	Employee number
ENAME	Varchar	Employee name
JOB	Char	Designation
MGR	Number	Manager's Emp. number
HIREDATE	Date	Date of joining
SAL	Number	Basic salary
COMM	Number	Commission
DEPTNO	Number	Department number

DEPT

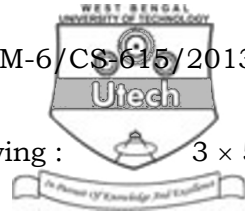
Column name	Data type	Description
DEPTNO	Number	Department number
DNAME	Varchar	Department name
LOC	Varchar	Location of department

Perform the following Query :

- A) List details of employees who have joined before 30th Sept., 1981.



- B) List employees not belonging to department 30, 40, or 10.
 - C) List employees whose names either start or end with "S".
 - D) List the maximum, minimum and average salary in the company.
 - E) List names of employees who are more than 2 years old in the company.
 - F) List the department numbers and number of employees in each department.
 - G) List the department number and total salary payable in each department.
- b) What is the main function of transport layer ? $(7 \times 2) + 1$
10. a) Discuss the modes of data transmission.
- b) Compare star and mesh topologies.
- c) Give the functions of Session layer in the OSI model.
- d) Briefly explain the RARP protocol. $3 + 5 + 3 + 4$
11. a) What is domain name server ?
- b) Specify the components defined by a URL.
- c) What is the difference between static and dynamic documents ?
- d) Explain active document. $4 + 4 + 4 + 3$



12. Write short notes on any *three* of the following : 3×5

- a) Telnet
- b) IP
- c) www
- d) Domain Relational Calculus
- e) Embedded SQL.

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