



Name :

Roll No. :

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.



- iii) Which is not true for Primary key ?
- a) Give preference to numeric column (s)
 - b) Give preference to single attribute
 - c) Give preference to minimal composite key
 - d) Give preference to weak entity.
- iv) Which is not the property of ACID ?
- a) Atomicity
 - b) Concurrency
 - c) Isolation
 - d) Durability.
- v) Which is the demerit of Normalization ?
- a) Normalization is based on a mathematical foundation
 - b) Removes the redundancy to a greater extent. After 3NF, data redundancy is minimized to the extent of foreign keys
 - c) Data retrieval of SELECT operation performance will be severally affected
 - d) Removes the anomalies present in INSERTs, UPDATEs and DELETEs.
- vi) Which data type is not supported by Oracle ?
- a) Number
 - b) Char
 - c) Varchar2
 - d) Float.
- vii) The IP address 192.168.10.29 belongs to
- a) Class A
 - b) Class B
 - c) Class C
 - d) Class D.
- viii) DELETE is a
- a) DDL statement
 - b) DML statement
 - c) DCL statement
 - d) none of these.



- ix) Which is not a Physical Topology ?
 a) Mesh b) Star
 c) Workstation d) Bus.
- x) How many layers are there in TCP/IP model ?
 a) 5 b) 7
 c) 8 d) 9.

GROUP – B

(Short Answer Type Questions)

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

2. a) What are Armstrong axioms ?
 b) Prove union, decomposition rule and pseudo transitivity using Armstrong axioms. $1 + 4$
3. a) What is the difference between candidate key, unique 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 ?
 b) What are weak entity set and strong entity set ? Provide examples. $2 + 3$
5. Draw the three layer architecture of DBMS. Describe each layer in brief.
6. a) What is the difference between centralized and distributed database ?
 b) What do you mean by simplex, half-duplex and full duplex ? $2 + 3$

GROUP – C

(Long Answer Type Questions)

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

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



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 111001100101 in RZ, NRZ, Manchester and Differential Manchester encoding technique. 7 + 2 + 6
11. Write short notes on any *three* of the following : 3 × 5
a) WWW
b) URL
c) Electronic Mails
d) DBA
e) Search Engines.

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