CS/B.Sc(H) (GENET, BT, MOL.BIO,MICRO.BIO)/SEM-4/CA-401/2011

2011

INTRODUCTION TO DBMS COMPUTER NETWORKING & NUMERICAL ANALYSIS

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)   A periodic signal completes one cycle in.001s.

What is the frequency ?

a)   1 Hz   b)   100 Hz

c)   1 khz   d)   1 MHz.

ii) Which of the following can be determined from a frequency-domain graph of a signal ?

a)   Frequency   b)   Phase

c)   Power   d)   All of these.

iii) BNC connectors are used by .... cables.

a)   UTP b)   STP

c)   coaxial   d)   fibre-optic.

iv) In an environment with many high-voltage devices, the best transmission medium would be

 a) twisted-pair cable   b) coaxial cable

 c) fibre-optic cable   d) atmosphere.

v) A .... bridge has the smallest ID.

 a) root   b) designated

 c) forwarding   d) blocking.

vi) In a VLAN, stations are separated into given by

 a) physical methods   b) software methods

 c) location   d) switches.

vii) The .... layer is the layer closest to the transmission medium.

 a) physical   b) data link

 c) network   d) transport.

viii) Mail service are available to network users through the .... layer.

 a) data link   b) physical

 c) transport   d) application.

ix) The .... layer lies between the network and the application layer.

 a) physical   b) data link

 c) transport   d) none of these.

x) Layer 2 lies between the physical layer and the .... layer.

 a) network   b) transport

 c) application   d) none of these.

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GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 　　3 × 5 = 15

2. What is Data Manipulation Language ? Discuss with example.

3. Explain super key, candidate key, primary key with example.

4. a) What is purpose of cladding in an optical fibre ?

   b) What are the advantages and diadvantages of optical fibre ? 　　$2\frac{1}{2} + 2\frac{1}{2}$

5. How many layers are there in the TCP/IP model ? Explain them briefly. 　　2 + 3

6. Find a solution of the following equation using Regula Falsi method : $x^3 - 3x + 7 = 0$.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 　　3 × 15 = 45

7. Create student table roll_no as the primary key and insert the values :

Roll_No	Name	Address	DOB	Sex	Subject	Marks
01	Suman	Delhi	7.12.1990	Male	Hindi	70%
02	Susmita	Kolkata	23.02.1988	female	Bengali	89%
03	Kamal	Pune	10.08.1991	Male	English	70%
04	Poulami	Goa	21.10.1992	female	Biology	80%

Write the following SQL query and show the possible output :

a) Select all values

b) Select students who are female

c) Select students who's name starts from "S".
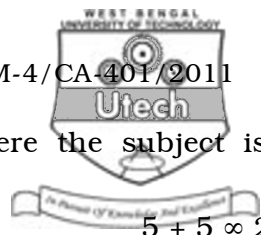
    d)   Replace marks "70%" by "75%" where the subject is "Hindi"

    e)   Delete "Suman" from the table. $5 + 5 \propto 2$

8.   a)   Using Runge, Kutta 4th order, find the value of y (0·2) and y (0·4) when $dy/dx = 1 + y^2$ and $y = 0$ when $x = 0$.

    b)   Compute f (0·33) and f (0·39) where the following are data :

x :	0·30	0·32	0·34	0·36	0·38	0·40
$f(n)$	1·7596	1·7698	1·7804	1·7912	1·8024	1·8139

                                                $7 + 8$

9.   a)   Why does internet use a connectionless network ?

    b)   When net id 172.168.65.13 belongs to subnet mask 255.255.192.0, find no. of subnet and no. of host/subnet.

         Calculate the total no. of subnet and host/subnet.

    c)   Calculate valid host range of the following :

         subnet id : 148.56.64.0, subnet mask : 255.255.252.0

                         &

         subnet id : 152.56.144.0, subnet mask : 255.255.254.0

                                       $3 + 6 + 6$

10.   a)   Briefly discuss the internet model.

    b)   What is a transparent bridge and what is the difference between root bridge and designated bridge ? $10 + 5$

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

    a)   OSI model

    b)   LAN

    c)   ER-diagram

d) Simpson's $\frac{1}{3}$ rd rule

e) Classfull and classless addresses.

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