Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/BCA/SEM-6/BCAE-601A/2010

2010

ADVANCE NETWORKING AND COMMUNICATION

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) Before data can be transmitted, they must be transformed to

      a) Periodic signals

      b) Electromagnetic signals

      c) Aperiodic signals

      d) Low frequency sine waves.

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

      a) Bandwidth b) Phase

      c) Power d) All of these.

iii) What is the bandwidth of a signal that ranges from 40 kHz to 4 MHz ?

a) 36 MHz

b) 360 kHz

c) 3·96 MHz

d) 396 kHz.

iv) A signal is measured at two different points. The power is P_1 at the first point & P_2 at the second point. The dB is 0. This means

a) P_2 is zero

b) P_2 equals P_1

c) P_2 is much larger than P_1

d) P_2 is much smaller than P_1.

v) If the maximum amplitude of a sine wave is 2V, then the minimum amplitude is

a) 2V

b) 1V

c) – 2V

d) Between – 2V & 2V.

vi) Unipolar encoding uses

a) only one voltage level

b) two voltage levels

c) three voltage levels

d) none of these.

vii) In NRZ-I, if a 1 is encountered

a) the signal is inverted

b) the signal is not inverted

c) both (a) and (b)

d) none of these.

viii) Bipolar encoding uses

a) two voltage levels

b) three voltage levels

c) one voltage levels

d) none of these.

ix) In 4B/5B encoding

a) every 4 bits of data is encoded into a 5-bit code

b) every 8 bits of data is encoded into a 10-bit code

c) every 12 bits of data is encoded into a 15-bit code

d) none of these.

x) Microwaves are used for

a) unicast communication

b) multicast communication

c) both (a) and (b)

d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. a) What is topology ?

b) Give an example of "With Host" and "Without Host" topology.

c) What is a star topology and Hybrid network ? 1 + 2 + 2

3. a) What is high-level data link control ?

b) Why is it used ?

c) Give the frame format for S-frame. 1 + 1 + 3

4. a) What do you mean by classless addressing ?

   b) What is the first address in the block if one of the block address is 167.199.170.82/27 ? 2 + 3

5. Briefly discuss the RSA algorithm.

6. List and briefly define the ATM classes.

GROUP – C

(Long Answer Type Questions)

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

7. a) What are Asynchronous protocol and Synchronous protocol ?

   b) What are the types of Synchronous protocol ?

   c) Discuss the BSC frame format ?

   d) What are the problems arises in BSC frame format.

   e) Give a brief comparison between I-frame and U-frame.

2 + 3 + 5 + 3 + 2

8. a) What is PDU (Protocol Data Unit) and what it contains ?

   b) What are data rate and signal rate ? Give relation between them.

   c) What is DC component ?

   d) What is packet switched network ?

   e) What is the difference between datagram network and virtual circuit network ? 4 + 4 + 2 + 2 + 3

9. a) What is digital signature ?

   b) Give the frame format of x.25.

   c) Discuss Manchester and differential Manchester encoding with a suitable example.

   d) What are the tasks performed in transport layer.

3 + 4 + 4 + 4

10. a) What do you mean by encoding ?

    b) What is "Foot Print " ?

    c) Discuss the B8ZS and HDB3 schemes with suitable example.

    d) What is the difference between CODEC and MODEM ?

    e) What are the processes required to perform PCM ? Discuss briefly. 2 + 2 + 4 + 2 + 5

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

    a) LEO

    b) SMTP

    c) ARP

    d) UDP

    e) CSMA/CD.