



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.

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- 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.

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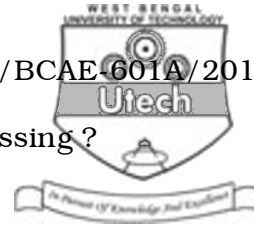
- ix) In 4B/5B encoding
- a) every 4 bits of data is encoded into a 5-bit code
 - b) every 8 bits of data is encoded into a 10-bit code
 - c) every 12 bits of data is encoded into a 15-bit code
 - d) none of these.
- x) Microwaves are used for
- a) unicast communication
 - b) multicast communication
 - c) both (a) and (b)
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

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

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

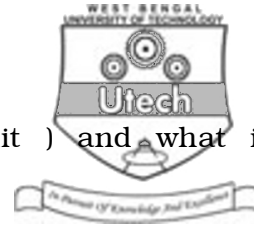
(Long Answer Type Questions)

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

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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.
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