

Name :

Roll No. :

Invigilator's Signature : *S. G. D. R. / 12/12*

CS/BCA/SEM-5/BCA-501/2012-13

2012

DATA COMMUNICATION AND COMPUTER NETWORK

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) The slowest transmission speeds are those of
 - a) Twisted pair wire
 - b) Coaxial cable
 - c) Twisted pair cable
 - d) Microwaves.

- ii) HDLC protocol works in
 - a) Application Layer
 - b) Presentation Layer
 - c) Session Layer
 - d) Data Link Layer.

- iii) The number of outgoing lines in a hub is
 - a) 1
 - b) n
 - c) $n - 1$
 - d) $n + 1$.

- iv) Baseband is
- a) digital signal
 - b) analog signal
 - c) none of these
 - d) all of these.

- v) Encryption is performed in
- a) Network Layer
 - b) Transport Layer
 - c) Session Layer
 - d) Data Link Layer.

- vi) What is the network address for 198.76.9.23 ?

- a) 198.0.0.0
- b) 198.76.0.0
- c) 198.76.9.0
- d) None of these.

- vii) Keyboard is an example of which of the following ?

- a) Simplex
- b) Half Duplex
- c) Full Duplex
- d) None of these.

- viii) Subnet mask of default route in

- a) 0.0.0.0
- b) 255.255.255.255
- c) Both (a) and (b)
- d) None of these.

- ix) Fragmentation is applicable for

- a) IP Header
- b) IP Data
- c) TCP Header
- d) TCP Data.

- x) In sliding window protocol if the window size is 64, what is the range of number ?

 - a) 0 to 63
 - b) 0 to 64
 - c) 1 to 63
 - d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any three of the following.

$$3 \times 5 = 15$$

2. Explain delta modulation with proper example. Mention its limitations.
 3. What is IP addressing ? What are the classes of IP addressing ? What is the difference between static and dynamic IPs ?
 4. Explain Leaky Bucket Algorithm.
 5. Briefly explain IPv4 datagram.
 6. Briefly explain FDM process.

GROUP - C

(Long Answer Type Questions)

Answer any three of the following.

$$3 \times 15 = 45$$

7. a) Compare between Asynchronous TDM and Synchronous TDM with proper diagram.

b) Briefly explain Virtual Packet switching network.

c) Briefly define Repeater, Bridge and Router. 5 + 4 + 6

8. a) What is MAC address ?
- b) Briefly describe the TCP connection establishment and termination. What are the basic differences between TCP/IP and OSI reference mode ?
- c) Discuss the tasks of transport layer.
- d) Briefly discuss Token Bucket Algorithm of Congestion control.
- 1 + 4 + 3 + 2 + 5
9. a) What do you mean by Classless Addressing ?
- b) What is the first address in the block if one of the addresses is 167.199.170.82/27 ? If a network on the Internet has a subnet mask of 255.255.240.0 and then what is the maximum number of hosts that it can handle ?
- 1.
- c) What is the need of subnet masking ?
- d) How can you compare Pure ALOHA and slotted ALOHA ?
- 2 + 3 + 3 + 2 + 5
10. Write short notes on any *three* of the following : 3×5
- a) Public key Cryptography
- b) BSC protocol
- c) Sliding Window Protocol
- d) Congestion Control
- e) OSI/ISO reference model.