

Name : .....

Roll No. : .....

Invigilator's Signature : *S. Gini* *08/12/12*

**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 :  $3 \times 5$
- a) Public key Cryptography
- b) BSC protocol
- c) Sliding Window Protocol
- d) Congestion Control
- e) OSI/ISO reference model.
-