Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.SC(INFO.Sc)/SEM-3/MI-301/2012-13

2012

COMPUTER NETWORKING

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 × 1 = 10

   i) Leaky bucket should come after token bucket algorithm in flow control mechanism

      a) True

      b) False

      c) They should be applied in parallel

      d) none of these.

   ii) Wireless LAN means

      a) IEEE 802.3 b) IEEE 802.9

      c) IEEE 802.11 d) None of these.

iii) If we compare the number of bits required to convert an analog data to digital signal by Delta Modulation (DM) and Pulse Code Modulation (PCM), then

a) DM requires lesser number of bits compared to PCM

b) PCM requires lesser number of bits compared to DM

c) DM and PCM require equal number of bits

d) None of these.

iv) If we compare FDDI and Token Ring networks, the channel utilization is

a) Higher in token ring

b) Higher in FDDI

c) Utilization factors are equal

d) None of these.

v) Data link layer has got two sub-layers

a) Logical Link Control and Logical Link Data

b) Logical Link Control and Media Access control

c) Logical Link Control and Logical Access Control

d) None of these.

vi) Which one is a valid IPv4 address ?

a) 111.045.56.78

b) 221.34.7.8.0.1

c) 75.45.301.14

d) None of these.

vii) What layer of the OSI model does 'framing' ?

a) Network b) Presentation

c) Daa Link d) Transport.

viii) To which class the following address belongs in class : 237.14.2.1

a) Class *A*

b) Class *B*

c) Class *C*

d) None of these.

ix) Convert the given binary form of IP address into decimal form :

11000001 10000011 00011011 11111111

x) Convert the given decimal form of IP address into binary form :

111.56.45.78

GROUP – B

(Short Answer Type Questions)

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

2. Describe with proper diagram the difference between Go-Back-N and Selective Retransmission flow control mechanisms.

3. Describe in detail the operations carried out in IEEE 802.3. Give necessary diagrams along with your answer.

4. With an example state how CRC operates in error detection mechanism ?

5. What is the address space of Class *A* ? Justify your answer using decimal form.

6. What are the advantages and disadvantages of star and mesh topology ?

GROUP – C

(Long Answer Type Questions)

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

7. a) What is PCM ? Describe your answer with proper example. 3

   b) How the problems of PCM have been solved in Delta Modulation (DM) ? 6

   c) What are the advantages of TCP over UDP ? 3

   d) Write a short note on ARP. 3

8. a) What is wireless LAN ? 4

   b) Define the basic operations of Wireless LAN. 5

   c) How does blue tooth work ? 6

9. a) Imagine a TCP connection is transferring a file of 8000 bytes. The first byte is numbered 20020. What are the sequence numbers for each segment if data is sent in five segments with the first four segments carrying 1,000 bytes and he last segment carrying 4,000 bytes ? 5

b) TCP is a connection-oriented reliable protocol. Prove the correctness of the statement. 5

c) How TCP handles the corrupted segment ? 5

10. a) The port address and logical address usually remains the same, but physical address change from hop to hop. Explain the statement with diagram. 5

b) Explain the peer-to-peer process communication in OSI model with diagram. 5

c) Explain the working principle of a bridge. 5

11. a) An organization is granted the block 130.34.12.64/26. the organization needs to have four subnets having equal number of addresses. what are the subnet addresses and range of addresses in each subnet ? 7

b) What is the concept of Distance Vector Routing Protocol ? 5

c) What are the major drawbacks of Distance Vector Routing Protocols ? 3