Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech (ECE-NEW)/SEM-6/EC-602/2010

2010

COMPUTER COMMUNICATION AND 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 any *ten* of the following : $10 \times 1 = 10$

   i) Which of the following allows devices on one network to communicate with devices on another network ?

   a) Switch b) Multiplexer

   c) Modem d) Gateway.

   ii) All the packets in a massage follow the same path in

   a) Datagram packet switching

   b) Message switching

   c) Virtual circuit switching

   d) Virtual circuit packet switching.

iii) A subnet mask in class A addressed network has fourteen 1's. How many subnets does it define ?

a) 64 b) 128

c) 32 d) 8.

iv) Pure ALOHA has a maximum efficiency of

a) 10% b) 37%

c) 18% d) none of these.

v) Host to host connectivity is provided by

a) Data link layer b) Network layer

c) Session layer d) Transport layer.

vi) Which of the following access methods has no collision ?

a) CSMA/CD b) CSMA/CA

c) ALOHA d) Token passing.

vii) The latest modulation technique used by data modems is

a) ASK b) QPSK

c) DPSK d) FSK.

viii) "Bit stuffing" is a common technique available n

a) Character oriented protocol

b) Sliding window with go-back-N

c) Repeated sliding window

d) Bit oriented protocol.

ix) A conventional PABX uses

a) Circuit switching b) Packet switching

c) Both (a) & (b) d) None of these.

x) Which error detection method involves polyomials ?

a) CRC

b) LRC

c) VRC

d) Checksum calculation.

xi) Which protocol is used for file transferring ?

a) SMTP b) SCTP

c) FTP d) TCP.

xii) A device operating at the Network layer is called

a) Bridge b) HUB

c) Router d) Repeater.

xiii) The sharing of a medium and its path by two or more devices is called

a) Modulation b) Encoding

c) Multiplexing d) Decoding.

xiv) Which one of the following is an Application layer service ?

a) FTP b) Remote log in

c) Mail service d) All of these.

GROUP – B
(Short Answer Type Questions)

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

2. Explain the migration process from IPv4 to IPv6. Write down four advantages of IPv6 over IPv4. 3 + 2

3. Compare Unicast addressing & Multicast addressing. What do you mean by guard band ? 3 + 2

4. Derive the expression of the efficiency of pure ALOHA. 5

5. Compare Path vector & Link state routing mechanisms. 5

6. Explain Leaky bucket algorithm for congestion control. 5

GROUP – C
(Long Answer Type Questions)

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

7. a) Describe the design goals of Cell-relay protocol for wide area networking.

   b) What is the relation between Virtual circuits & Virtual paths for a particular transmitting path during the data transfer ?

   c) Compare the following :

      i) VPI & VCI

      ii) PVC & SVC

   d) What do you mean by ATM LAN ? Discuss ATM LAN architecture. 3 + 3 + (2 × 2) + 5

8. a) Analyze the performance of pure ALOHA. How does slotted ALOHA improve performance over pure ALOHA ? In both cases find the expressions for average delay & throughout.

   b) Compare the performance of pure ALOHA with slotted ALOHA.

   c) Describe ALOHA with flow-chart. 2 + 2 + 4 + 3 + 4

9. a) What do you mean by Distance Vector Routing ?

   b) Describe the Link state routing mechanism with proper routing protocol function.

   c) Compare Transient link & Stub link.

   d) What do you mean by Static routing table & Dynamic routing table ?

   e) Compare intra-domain & inter-domain routing.

3 + 4 + 3 + 2 + 3

10. a) Define Token ring and Token bus.

    b) Describe the CDMA process.

    c) Compare CSMA/CD & CSMA/CA with proper flow-chart.

    d) A group of *N* stations share a 56 kbps Aloha channel. Each station outputs a 1000 bit frame on an average of once 100 sec, even if the previous one has not been sent. What is the maximum number of N ?

2 + 4 + (2 × 3) + 3

11. a) What is the function of ADD/DROP Multiplexer in case of SONET ?

b) Describe the SONET device – layer relationship.

c) What do you mean by Byte interleaving ?

d) Compare point to point & multipoint network in SONET.

e) What is the difference between SONET & SDH ?

4 + 3 + 2 + 3 + 3

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

a) DWDM

b) RSA Algorithm

c) HTTP

d) MAC

e) E-mail

f) Digital Signature.