



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 × 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 message follow the same path in
 - a) Datagram packet switching
 - b) Message switching
 - c) Virtual circuit switching
 - d) Virtual circuit packet switching.



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

- 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 polynomials ?

- 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. $3 \times 5 = 15$

- 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.
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 & throughput.
- b) Compare the performance of pure ALOHA with slotted ALOHA.
- c) Describe ALOHA with flow-chart.



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.

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