2012

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 error detection method involves polynomials ?

a) CRC b) LRC

c) VRC d) Checksum calculation.

ii) Which protocol is used for file transferring ?

a) SMTP b) SCTP

c) FTP d) TCP.

iii) Which connector STP uses ?

a) BNC b) RJ-11

c) RJ-45 d) RJ-69.

iv) For large networks ..... topology is used.

a) Mesh b) Ring

c) Bus d) Star.

v) In OSI network architecture, the routing is performed by

a) network layer b) transport layer

c) application layer d) none of these.

vi) The steps in transferring a mail message are

a) connection establishment

b) mail transfer

c) connection termination

d) all of these.

vii) Interpret the following sequences of characters received by a TELNET client or server

a) FFFB01 b) FFFE01

c) FFF4 d) FFF9.

viii) Telephone networks are

a) circuit-switching b) cell-switching

c) packet-switching d) message-switching.

ix) What is the default Administrative Distance (AD) for RIP ?

a) 90 b) 100

c) 110 d) 120.

x) Define the class of the address : A1:12:3D:CD:0F:FF

a) uni-cast address b) multi-cast address

c) broad-cast address d) any-cast address.

xi) The latest modulation technique used by data modem is

a) GMSK b) PSK

c) BPSK d) QPSK.

xii) The Private key cryptography is related to

a) Cipher text b) Plain text

c) Decryption key d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What do you mean by public key cryptography ? Explain encryption and decryption process using RSA algorithm.

2 + 3

3. What is the difference between intra and inter domain routing ? Write down one example of inter domain routing and explain it.

1 + 1 + 3

4. Briefly describe various persistence methods in CSMA.

5. Explain Mesh topology using suitable diagram. Write down the differences between star topology and mesh topology.

3 + 2

6. What is congestion control ? Explain Leaky bucket algorithm.

2 + 3

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is the function of ADD/DROP Multiplexer for 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

8. a) Define Subnetting & supernetting in IP network.

   b) A block of address is granted to a small organization. One of the address is 225.17.37.39/28. Find out the First address, Last address & total number of address.

   c) Discuss about TCP/IP Handshaking process for connection establishment & termination.

$3 + 2 + 2 + 1 + 3\frac{1}{2} + 3\frac{1}{2}$

9. a) Explain GSM architecture with proper diagram.

   b) GSM call generation is fully dependent on 'Frequency reuse'. Explain.

   c) Discuss about ATM reference model with proper diagram & compare it with OSI reference model.

$5 + 5 + 5$

10. Explain the following terms with proper example against Bellman-Ford algorithm : 5×3

   i) Minimum cost

   ii) Maximum cost

   iii) Re-computing of minimum cost

   iv) Shortest path tree

   v) Reaction to Link failure.

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

   a) DES

   b) FDDI

   c) VPI & VCI

   d) Add and Drop Multiplexer

   e) Routing mechanism.

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