MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : IT-602

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 : $10 \times 1 = 10$

i) IPv6 does not use ..... type of address.

a) Broadcast b) Multicast

c) Any cast d) none of these.

ii) Which multiplexing technique transmits analog signals ?

a) TDM b) FDM

c) WDM d) both (b) and (c).

iii) SMTP is a

a) networking protocol

b) protocol used for transferring message between end user and mail server

c) protocol used for smart card message interchange

d) encryption standard.

iv) Pure ALOHA has a maximum efficiency of

a) 18% b) 37%

c) 14% d) none of these.

v) The network layer concerns with

a) bits b) frames

c) packets d) none of these.

vi) Which one of the following tasks is not done by data link layer ?

a) Framing b) Error control

c) Flow control d) Channel coding.

vii) Which topology requires multipoint connection ?

a) Star b) Mesh

c) Ring d) Bus.

viii) Which one of the following allows a user at one site to establish a connection to another site and then pass key strokes from local host to remote host ?

a) HTTP b) FTP

c) Telnet d) none of these.

ix) MAC address is of

a) 24 bits b) 36 bits

c) 42 bits d) 48 bits.

x) Which one of the following routing algorithms can be used for network layer design ?

a) Shortest path algorithm

b) Distance vector routing

c) Link state routing

d) All of these.

GROUP – B

(Short Answer Type Questions)

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

2. What is CSMA/CA ? What is the requirement of SFD ? What is slotted ALOHA ? 2 + 1 + 2

3. How is the connection established using three-way handshaking ? Explain in detail. 2 + 3

4. Distinguish between the following :

a) Pure Aloha and Slotted Aloha 2

b) TCP and UDP. 3

5. What is congestion ? Explain Leaky bucket algorithm. 1 + 4

6. a) How does FDM combine multiple signals into one ?

b) How do guided media differ from unguided media ?

c) We want to digitize the human voice. What is the bit rate, assuming 8 bit per sample ? 2 + 1 + 2

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GROUP – C

(Long Answer Type Questions)

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

7. Distinguish among the working principles of circuit switching, message switching and packet switching. What do you mean by subnet masking ? A block of addresses is granted to a small organisation. We know that one of the addresses is 205.16.37.39/28. What is the first and last address in the block ? What is tunnelling ? Explain with an example. 6 + 2 + 4 + 3

8. The address 43 : 7B : 6C : DE : 10 : 00 has been shown as the source address in an Ethernet frame. The receiver has discarded the frame. Is the rejection justified ? Compare and contrast CSMA/CA with CSMA/CD. How is the loop problem removed in transparent bridge ? Explain with an example. What is bit stuffing ? 3 + 5 + 5 +2

9. Explain selective repeat ARQ protocol. Compare and contrast TDM and FDM. The code 11110101101 was received using the Hamming Code algorithm. Determine the original code sent. 5 + 5 + 5

10. Explain Distance Vector Routing with an example. Differentiate between symmetric and asymmetric key cryptography. Explain RSA algorithm with an example. 5 + 4 + 6

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

a) RARP

b) HDLC

c) Sliding Window Protocol

d) Frame relay

e) IMAP.

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