*6th Sem B. Tech.IE . Tech D ua l (Supplementary )*



CN !T-603 (CSE, IT)

**SUPPLEMENTARY EXAMINATION-2013**

h Semeter B.Tech *I* B.Tech Dual(M.Tech/MBA)

**COMPUTER NETWORK IT-603**

# Full Marks: 60 Time: 3 Hours

*Answer any SIX questions including Question No.I which is compulsory.*

*Thefigures in the margin indicatefull marks.*

*Candidates are required togive their answers in their own words asfar as practicable and all parts of a question should be answered at one place only.*

# a) What are the advantages of multipoint connection over point [2 x 10 to point connection?

* 1. Explain the meariing ofbit stuffing?
  2. Inclassless addressing,can two different blocks have the same prefix length? Explain.
  3. Why does datagram network need only end-to-end addressing during setup and tear down phase? Why no addresses needed during the data transfer phase for this network? ·
  4. What isthe difference between burst error and single bit error? How it can be handled?

f) How does a persistent CSMA differs from a non- persistent CSMA?

1. A signals travel from point A to point B.At point Athe signal power is 1GOW.and at point B, the power is 90W.What is the attenuation in decibels?
2. Why the cables are twisted jn twisted pair cable?

(1)

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O Define block cocling. Define itspurpose. ,•

j) What is the difference between supervisory frame and information frame in HDLC Protocol?

1. a) We need to synchronous TDM and combines 25 digital [4 resources, each of 1OOkbps.Each output slot carries 1bit from

each digital source, but one extra bit for synchronization. Answer the following question.

(l) What is the size of an output frame inbits?

(ii) What is the output frame rate?

. (:riI What isthe duration of an output frame?

(iv) What is the output data rate?

b) Write down different layers of TCP/IP model. Explain each [4 one ofthem with example.

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| 3. | a) | Suppose that a Stop-and-Wait ARQ System has a time value that is less than the time to receive an acknowledgement . Sketch the sequence of frame of exchanges that transpire between two stations when stationA sends five frame to station B when no error occurs during transmission. | [4 |
|  | b) | An ISP granted the block 80.70.56.0/21.the ISP needs to allocate address for two organizations with each with 500 addresses, two organizations each with 250 addresses, and three organizations with 50 addresses. | [4 |
|  |  | (i) Find the number and range of addresses in ISP block. |  |
|  |  | (n) Find the range of addresses for each organizations and |  |

the range of the unallocated addresses

(lii) Show the outline of the address distribution and the forwarding table.

(2)

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4-' a) Given the data word 101001111 and the divisor 10111, show [4

the generation of the CRC codeword at the sender site.

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b) What isthe difference between Packet switching and Circuit [4 switching? Explain with examples.

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| 5. | a) | There are only two-stations,A ana B-;-ina bus I -persistence CSMA/CD network withTp=25.6 micro sec. and Tfr=120 | [4 |
|  |  | micro sec. Station A has frame to send to station B at time |  |
|  |  | t=O.0 micro sec and station B sending a frame at 23.0 micro sec.Do frame collide? Ifyes ,does station A and B detects |  |
|  |  | collision? |  |
|  | b) | Explain the procedure ofchecksum calculation and verification | [4 |
|  |  | in the IPV4 protocol. What part of an IPV4 packet is covered |  |
|  |  | in the check sum calculation? Why? Are, options,Ifpresent, included inthe calculation? |  |

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| 6. | a) | For each of the following four networks, discuss the consequences if aconnection fails.  (i) Six devices arranged in a bus topology | [4 |
|  |  | (ii) Four devices arranged ina ring topology |  |
|  |  | (rii) Five devices arranged in a mesh topology |  |
|  |  | (iv) Seven devices arranged in a star topology |  |
|  | b) | What is ICMP protocol? Why it isused? What isthe minimum size of an ICMPv4 packet which inturn carries an ICMPv4 | [4 |
|  |  | packet? What isthe maximum size? |  |

* 1. a) Ina TCP Connection, the initial sequence number at the client [4 side is 2171.The client opens the connection, send three segments, the second of which carries 1,000 bytes of data

(3)

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and closes the connection. What is the value of the sequence number in each of the segments sent by the client?

* + 1. The SYN Segment (ii) The data segment (iii) The FIN segment

1. Ina network using the Selective-Repeat protocol with m=4 [4 and sending window size of 8, the value of variables of Sf=62,Sn=67, and Rn=64.Packet 65 has already been acknowledged at the sender site; packet 65 and 66 ar'e received

out-of-order at the receiver site. Assume the network does not duplicate the packets.

* 1. What are the sequence numbers of pending data packets (in transit, corrupt or lost)?
  2. What are the acknowledgement numbers ofpending ACK packets (in transit, corrupt or lost)?

[4 x 2

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| 8. |  | Write short Notes on any two. |
|  | a)  b)  c) | Unguided Media  ARP  Channelization |

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d) Unicast vs Multicast Routing

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