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Total Pages : 4

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May, 2019
B.Tech. EIC - VI SEMESTER
Computer Networks (EI-304C)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) Differentiate between physical and logical addressing.

   (1.5) CO1

   (b) Which layers in TCP/IP model are user support and network support layer. (1.5) CO1

   (c) What are the propagation time and transmission time 2.5 kbyte message if BW of network is 1 gbps. Assume that distance between sender and receiver is 12000 km and light travel at 2.4×10^8 m/sec.

   (1.5) CO2

   (d) How GPS system works? (1.5) CO2

(e) Can a routine table in datagram network have two entries with same input port number. Explain.

(1.5) CO2

(f) Define piggybacking and its usefulness. (1.5) CO2

(g) What attributes are used for traffic control in frame relay? (1.5) CO4

(h) List two sub function of fault management and configuration management. (1.5) CO4

(i) TCP is sending data at 2 mbps. If the sequence number starts at 7000, how long does it take before the sequence number goes back to 0. (1.5) CO4

(j) A slotted ALOHA network transmits 200-bit frame using a shared channel with a 200 kbps BW. Find the throughput if the system produces 1000 frames per sec. (1.5) CO3

PART-B

2. Explain OSI model in detail and discuss how layers of TCP/IP model correlates to layers of OSI model.

(15) CO1

3. (a) Discuss packet switching and compare it with circuit switching. How transmission time depends upon packet size. Explain it with example. (8) CO2

(b) What is guided transmission media and describe its application performance advantages disadvantages, and type of connectors. (7) CO2

4. (a) Compare and contrast random access technique with controlled access techniques. Discuss CSMA/CA with its flow diagram & what is vulnerable time for CSMA? (8) CO3

(b) Draw all the four possible cases of Go-Back-N ARQ with its algorithm. And what should be the window size and why. (7) CO2

5. (a) An ISP granted a block of addresses 190.100.0.0/16. The ISP needs to distribute these addresses to three group of customers as follows:

(1) The first group has 64 customers. Each needs 256 addresses.

(2) The second group has 128 customers. Each needs 128 addresses.

(3) The third group has 128 customers. Each needs 64 addresses.

Design the sub block and find out how many addresses are still available after these allocations. (8) CO3

(b) Discuss distance vector routing with example.

(7) CO3

6. (a) The following is a dump of a TCP header in hexadecimal format

05320017 00000001 00000000 500207FF 00000000

1. What is the source port number?

2. What is the destination port number?

3. What is sequence number?

4. What is length of header?

5. What is window size? (8) CO4

(b) If bob chooses p and q as 7 and 11 and $e = 13$, Encrypt plain text 5. (7) CO4

7. (a) Write short note on following :

   (i) SNMP. CO4

   (ii) FDM. (5+5) CO3

   (b) Convert the following data into hemming code and check it out for no error and error at 7th bit position. Data - 11001011 (5) CO2