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10EC/TE71

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020
Computer Communication Networks

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART - A

1 a. With a neat diagram, explain TCP / IP Protocol suite with a brief description of the protocol in each layers. **(10 Marks)**
   b. Explain cable T.V Networks with a neat diagram. **(06 Marks)**
   c. Explain with a neat diagram SS7. **(04 Marks)**

2 a. With a neat diagram, explain three different types of HDLC frames. **(10 Marks)**
   b. Apply bit stuffing and unstuffing for
      1 0 0 0 1 1 1 1 1 1 1 1 0 0 1 1 1 1 1 0 1 0 0 0 1 1 1 1 1 1 1 1 1 0 0 0 0 1 1 1 1 1. **(04 Marks)**
   c. Why window size in GO Back N ARQ should be less than 2^m? Explain with an example. **(06 Marks)**

3 a. Describe Polling and Token Passing method under Controlled Access Protocols. **(08 Marks)**
   b. In the fig. Q3(b) given , the data rate is 10Mbps, the distance between station A and C is 2000m and the propagation speed is 2×10^8 m/s. Station A starts sending a long frames at time $t_1 = 0$; station C starts sensing a long frame at time $t_2 = 3\mu s$. The size of the frame is long enough to guarantee the detection of collision by both stations. Find
      i)   The time when station C hears the collision (t_3).
      ii) The time when station A hears the collision (t_4).
      iii) The number of bits station A has sent before detecting the collision.
      iv) The number of bits station C has sent before detecting the collision. **(08 Marks)**

Fig.Q3(b)

   c. In a CDMA system the four chip sequences are :
      A : $(-1 - 1 - 1 + 1 + 1 - 1 + 1 + 1)$.
      B : $(-1 - 1 + 1 - 1 + 1 + 1 + 1 - 1)$.
      C : $(-1 + 1 - 1 + 1 + 1 + 1 - 1 - 1)$.
      D : $(-1 + 1 - 1 - 1 - 1 - 1 + 1 - 1)$.
      If the received sequence is $(-1 + 1 - 3 + 1 - 1 - 3 + 1 + 1)$, what is the data transmitted by the four stations. **(04 Marks)**

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4   a. What are Hidden and Exposed Station Problems in wireless LANS? Give solution for each.

(10 Marks)

     b. Give the format for IEEE 802.3 Frame format. What are the minimum and Max. Frame length?

(08 Marks)

     c. Identify if the following 802.3 MAC Addresses are Unicast, Multicast or Broadcast.

       i) 4A : 30 : 10 : 21 : 10 : 1A   ii) 47 : 20 : 1B : 2∈ : 08 : E∈ .   **(02 Marks)**

PART - B

5   a. Explain three criteria of Transparent bridge in detail with relevant diagrams.   **(10 Marks)**

     b. A system with Four LANS and Five bridges is shown in fig. Q5(b). Choose B1 as the root bridge. Show the Forwarding and Blocking Ports after applying the spanning tree procedure.

(10 Marks)
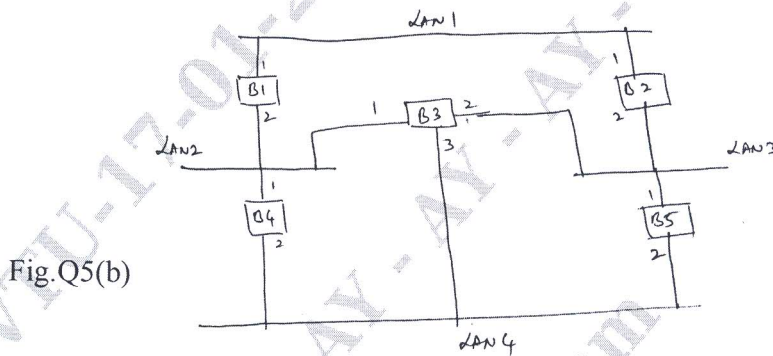
Fig.Q5(b)

6   a. Explain IPV_4 Header Format.   **(08 Marks)**

     b. Explain briefly strategies used to handle the transition from IPV4 to IPV6.   **(06 Marks)**

     c. Explain classful addressing and what are the Problems in classful addressing.   **(06 Marks)**

7   a. Explain distance vector routing for the following example as shown in fig. Q7(a). **(10 Marks)**
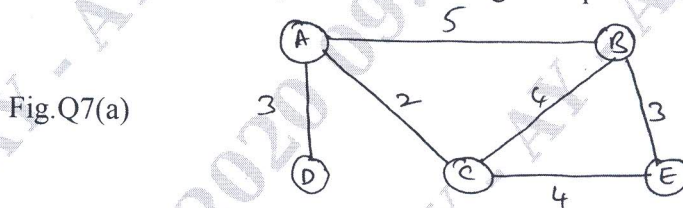

Fig.Q7(a)

     b. Compare Multicasting with Multiple Unicasting. Differentiate between source based tree and group shared tree approach used in Multicast routing.   **(10 Marks)**

8   a. Describe a TCP connection and explain TCP connection establishment using three way handshaking.

(10 Marks)

     b. Explain Recursive resolution and Iterative resolution in name address resolution. **(10 Marks)**

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