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06EC71

Seventh Semester B.E. Degree Examination, June 2012
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

PART – A

1 a. With a neat diagram, explain the TCP/IP reference model. **(10 Marks)**

b. Explain in detail, the cable TV network used for data transfer. **(06 Marks)**

c. Calculate the minimum time to download the one million bytes of information using each of the following technologies :
   i) V.32 modem
   ii) V.32 bis modem
   iii) V.90 modem. **(04 Marks)**

2 a. With a neat diagram of piggy backing in Go–back–N ARQ protocol, explain the following :
   i) Frame structure of piggy backing
   ii) Types of events occured in piggybacking
   iii) Advantages of piggybacking. **(10 Marks)**

b. With a neat diagram, explain the different types of high level data link control (HDLC) frames. **(06 Marks)**

c. The following character encoding is used in a data link protocol :
A : 01000111; B : 11100011; FLAG : 01111110; ESC = 111 00000. Show the bit sequence transmitted (in binary) for the four character frame : A B ESC FLAG when each of the following framing methods are used :
   i) Character count
   ii) Flag bytes with byte stuffing
   iii) Starting and ending flag bytes with bit stuffing. **(04 Marks)**

3 a. With a suitable flow diagram, explain CSMA/CD protocol and discuss the frame transmission time. **(08 Marks)**

b. Explain the following controlled access methods :
i) Reservation ii) Polling iii) Token passing. **(08 Marks)**

c. Show that the throughput for pure ALOHA is $S = Ge^{-2G}$ and maximum throughput $S_{max} = 0.184$. **(04 Marks)**

4 a. With a neat diagram, explain 802.3 MAC frame format. **(10 Marks)**

b. Explain the following standard ethernet physical layer implementations.
   i) 10 base 5 : thick ethernet
   ii) 10 base 2 : thin ethernet
   iii) 10 base T : twisted pair ethernet
   iv) 10 base F : fiber ethernet. **(10 Marks)**

PART – B

5 a. Explain the following in brief :
i) Passive hubs
ii) Active hubs
iii) Bridges
iv) Router
v) Gateway. **(10 Marks)**

b. Explain virtual LAN system and how the membership is allocated in the V–LAN system. **(10 Marks)**

6 a. What are the differences between classful and classless addressing? **(05 Marks)**

b. What is network address translation (NAT)? Explain in brief. **(05 Marks)**

c. Draw the IPV4 datagram format and explain its field. **(10 Marks)**

7 a. Explain in detail, the distance vector routing algorithm. **(10 Marks)**

b. Explain three different forwarding techniques. **(10 Marks)**

8 a. Explain in detail, user datagram protocol, UDP. **(10 Marks)**

b. Describe DNS in the internet. **(10 Marks)**

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