Total No. of Questions : 10]

SEAT No. : ____

P1755

[Total No. of Pages : 3

[5460] - 585
T.E. (Computer)
COMPUTER NETWORKS
(2015 Pattern)

Time : 2½ Hours] ***[Max. Marks :70***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary***

Q1) a) What are different types of topology? Explain any one. **[4]**

b) Define FHSS and explain how it achieves bandwidth spreading. **[6]**

OR

Q2) a) Explain 802.11 Wireless frame format? **[6]**

b) For the bit sequence 10000101111 draw the waveform for **[4]**

i) Manchester Encoding

ii) Differential Manchester Encoding

Q3) a) Measurement of a slotted ALOHA channel with an infinite number of users, show that 20 percent of the slots are idle: **[4]**

i) What is the channel load?

ii) What is the throughput?

b) Explain MAC 802.3 frame format . **[6]**

OR

Q4) a) Explain the working of Cyclic Redundancy Check (CRC) using the following example (show the complete steps of division)
Data bits: 1101110110
Generator Polynomial: $x^3 + x + 1$
Write the redundant bits that will be sent along with the data bits. **[6]**

b) Compare and contrast the Go-Back-N ARQ protocol with Selective-Repeat ARQ. **[4]**

P.T.O.

Q5) a) A host was given the 192.168.2.64 /27 IP address, indicate: **[6]**

i) Netmask of the network.

ii) The network broadcast address to which the host belongs.

iii) The total number of hosts available in the network.

b) Explain Distance Vector Routing Algorithm. **[6]**

c) Write short note on Network Address Translation **[4]**

OR

Q6) a) Host A sends a UDP datagram containing 8880 bytes of user data to host B over an Ethernet LAN. Ethernet frames may carry data up to 1500 bytes (i.e. MTU = 1500 bytes). Size of UDP header is 8 bytes and size of IP header is 20 bytes. There is no option field in IP header. How may total number of IP fragments will be transmitted and what will be the contents of offset field in the last fragment? **[6]**

b) Describe in short the importance and working of ARP protocol? What is ARP cache. **[8]**

c) What is ICMP? **[2]**

Q7) a) What causes Silly Window syndrome ? How it is avoided ? Explain **[6]**

b) Differentiate between TCP and UDP protocol. **[4]**

c) Following is a dump of UDP header in Hexadecimal format. **[6]**

06 32 00 0D 00 1C E2 17

i) What is source port number?

ii) What is destination port number?

iii) What is total length of the user datagram?

iv) What is the length of the data?

v) Is packet directed from a client to server or vice versa?

vi) What is the client process?

OR

Q8) a) In a Stop-and-Wait system, the bandwidth of the line is 1 Mbps, and 1 bit takes 10 milliseconds to make a round trip. What is the bandwidth-delay product? If the system data packets are 1,000 bits in length, what is the utilization percentage of the link? **[4]**

b) What are the types of socket? Explain various socket primitives used in connection oriented client server approach. **[8]**

c) Explain state transition diagram of TCP **[4]**

Q9) a) Explain HTTP request and reply message format. **[6]**

b) Write short notes on **[8]**

i) DHCP

ii) MIME

c) Explain various FTP commands? **[4]**

OR

Q10) a) Define FTP ? Can we specify file transfer in a Web page? Explain with the help of suitable example. **[6]**

b) Explain working of IMAP. **[4]**

c) What is DNS? Explain its various resource records with one example **[8]**

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