Printed Pages: 02 Sub Code: RCS601

Paper Id: 110262 Roll No. | | | | | | | | | | |

B.TECH
(SEM-VI) THEORY EXAMINATION 2018-19
COMPUTER NETWORK

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. What are header and trailers and how do they get added and removed?

b. A large FDDI ring has 100 stations & a token rotation time of 40msec. The token holding time is 10msec. What is the maximum achievable efficiency of the ring?

c. What is the difference between network layer delivery and the transport layer delivery?

d. If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?

e. What is count-to-infinity problem?

f. What is the difference between a user agent (UA) and a mail transfer agent (MTA)?

g. What is time-to-live or packet lifetime?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Define topology and explain the advantage and disadvantage of Bus, Star and Ring topologies.

b. A channel has a bit rate of 20 kbps. The stop and wait protocol with frame size 4500 bits is used. The delay for error detection and sending ACK by the receiver is 0.25 seconds because of a fault. Find the maximum efficiency of the channel if the destination is 30000km away and the speed of the propagation of the signal is $2.8X10^8$ m/s. Find the decrease in efficiency due to the fault.

c. What is unicast routing? Discuss unicast routingprotocols.

d. Explain about the TCP header and working of TCP protocoland differentiate between TCP and UDP with frameformat.

e. (i) How is TFTP different from FTP?
(ii)What three functions can SNMP performto manage network devices?

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) What is OSI Model? Explain the functions; protocols andservices of each layer?

(b) Encode the data-stream 10011010 using the following encoding scheme:
(i) Unipolar
(ii) Bipolar NRZ-L
(iii) Bipolar NRZ-I
(iv) RZ

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(v) Manchestor
(vi) Differential Manchestor
(vii) AMI

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) A slotted ALOHA network transmits 400-bit frames on a shared channel of 400 kbps. What is the throughput if the system (all stations together) produces –
(i) 1000 frames per second
(ii) 500 frames per second
(iii) 250 frames per second

(b) Explain ARQ Error Control technique, in brief.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Write advantages of Next-generation IPV6 over IPV4.

(b) The IP network 200.198.160.0 is using subnet mask 255.255.255.224. Design the subnets.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) The following is the dump of a TCP header in hexa decimal format:
05320017 00000001 00000000 500207FF 00000000
(i) What is the sequence number?
(ii) What is the destination port number?
(iii) What is the acknowledgment number?
(iv) What is the window size?

(b) What do you understand by Quality of service, parameters? List various Quality of service parameters.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) (i) How is the BOOTP different from DHCP?
(ii) What is the purpose of the Domain Name System? Discuss the three main divisions of the domain name space.

(b) Write short notes on any two:
(i) SMTP
(ii) TELNET
(iii) HTTP

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