TCS-502   31   No of printed pages : 5

Paper Code & Roll No. to be filled in your Answer Book

Roll No.

Odd Semester Examination-2016

B.Tech (SEMESTER - V)

COMPUTER NETWORK

[Time : 3 Hours]   [Maximum Marks :100]

Note : Attempt **all** the questions.

1.   Attempt **any four** questions :   [5x4=20]

(a)   Explain the differences between broadcast and point-to-point networks. If a binary signal is sent over a 3-kHz channel whose signal-to-noise ratio is 20 dB, what is the maximum achievable data rate?

(b)   Discuss the TCP/IP protocol suite on the basis of layering principle.

(c)   Define topology and explain the advantages and disadvantages of Bus, Star and Ring topology.

(d)   Explain various switching methods with suitable examples.

(e) What are the salient features of ISDN? Discuss functions of different layers in ISDN.

(f) What does the Nyquist theorem and Shannon Capacity have to do with communication?

(g) Explain the working principle of Optical transmission media. What is multi-mode graded index and mono mode step index?

2. Attempt **any four** questions : [5x4]

(a) Explain stop and wait protocol. Discuss drawbacks of stop and wait protocol.

(b) Which are the requirements of CRC? What is piggybacking?

(c) How can you compare pure ALOHA and Sled ALOHA?

(d) Explain about CSMA/CD and CSMA/CA and uses.

(e) Differentiate between 802.3, 802.4 and 802.5 IE Standards.

(f) Discuss various transmission impairments.

(g) What are. different types of error detection methods? Explain checksum error detection technique.

3. Attempt **any two** questions : [10x2=20]

(a) How does DNS perform data name resolution? What are the different types of name servers? Mention the DNS message format for query and reply messages.

(b) What is the total delay for a frame size of 10 million bits that is being setup on the link with 15 routers, each having queuing time of 2 ms and processing time of 1 ms? The length of the link is 3000 km. The speed of light inside link if 2×10^8 m/sec. The link has bandwidth of 6Mbps.

(c) What is IP addressing? How it is classified? How subnet addressing is performed? Define IPv4 header. Explain briefly, the new features in IPv6 as compared to IPv4.

(d) Explain about the TCP header and working of TCP protocol. Differentiate between TCP and UDP with frame format.

4. Attempt **any two** questions : [10x2=20]

(a) What is multipurpose internet Mail Extension (MIME) and for what it is used? Differentiate between SMTP, POP and HTTP.

(b) Compare symmetric key and asymmetric key cryptography. Explain how RSA and DES works.

(c) What are the reasons for congestion in a network? Describe any one method for congestion control.

(d) What are different routing algorithms? Write the implementation of shortest path routing.

5. Attempt **any two** questions : [10x2=20]

(a) Explain how does e-mail reaches to destination. Explain in brief SMTP emphasizing the role and function of User Agent (UA) and Mail Transfer Agent (MTA).

(b) Explain three way handshaking. How does the transport layer ensure that the complete message arrives at the destination and in the proper order?

(c) Explain leaky bucket and token bucket algorithm.

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(d) Define Routing. Discuss distance vector routing. What is the netmask of the gateway interface in a subnetwork where maximum 25 hosts exists and IP address of the one of the host is 192.168.1.1.

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