Model Question Paper

SIXTH SEMESTER B TECH DEGREE EXAMINATION

(2013 Scheme)

13.604: COMPUTER NETWORKS (R)

Time : 3 Hours   Max. Marks : 100

Part A (Answer *all* questions)

1. Give the differences between Computer Networks and Distributed Systems.
2. A bit string 0111101111101111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing?
3. What is the relevance of Duration field in an 802.11 frame?
4. A network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?
5. DNS uses UDP instead of TCP. If a DNS packet is lost, there is no automatic recovery. Does this cause a problem, and if so, how it is solved?

(5 x 4 = 20)

Part B (Answer *one full question* from each module)

Module I

I. (a) Discuss the functions of data link layer in a computer network.   (10)

(b) Describe the role of network layer and transport layer in TCP/IP model.   (10)

II.   (a) Identify the layers in OSI reference model and illustrate their functions.   (10)

(b) Discuss about the design issues of computer networks.   (10)

Module II

III. (a)The following character encoding is used in a data link protocol:

A: 01000111; B: 11100011; FLAG: 01111110; ESC: 11100000

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.   (12)

(b) Discuss about the structure and working of Switched Ethernet.   (8)

IV. Describe CSMA/CD protocol in Ethernet.   (20)

Module III

V. (a) Discuss about the techniques to improve QoS in internetworking.   (10)

(b) Illustrate the routing procedure in mobile networks.   (10)

VI. Illustrate the working of OSPF and BGP.   (20)

Module IV

VII.   (a). Give the format of TCP header and discuss the relevance of various fields (12)

(b). How transport layer connection is established in TCP? Illustrate with state diagrams.   (8)

VIII. (a) Explain the features of H.323 and SIP   (12)

(b) How name servers are managed in DNS?   (8)