SPRING END SEMESTER EXAMINATION-2015

6th Semester B.Tech & B.Tech Dual Degree

COMPUTER NETWORKS (IT-603)

(Regular-2012 & Back of Previous Admitted Batches)

Full Marks: 60 **Time: 3 Hours**

Answer any SIX questions including Question No.1 which is compulsory.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

1. a) What is a Socket? How a socket is uniquely identified? [2 × 10

   b) What is Hamming distance? What is Hamming distance between 100111 and 111001?

   c) In TCP, an end point remains for 2MSL in TIME_WAIT state. Explain.

   d) Compare and contrast flow control and Error control.

   e) What is the difference between connectionless and connection oriented services? Why connectionless service is used though of connection oriented service is available.

   f) What is the significance of TTL field in IPV4 Header?

   g) Why fragmentation is necessary during packet transmission?

   h) What is role of DHCP protocol?

   i) If all the network sources are bursty that they only occasionally have data to send. Would packet switching or circuit switching be more desirable in this case? Explain.

j) Suppose Computer A and B has IP addresses 10.105.1.1.113 and 10.105.1.91 respectively and they both use the same net-mask N. What is the values of N if A and B should belong to the same network?

2. a) Describe the various layers of OSI Model. Explain the functionality of for each layer. [4

b) Given the data word 101001111 and the divisor 10111, show the generation of the CRC codeword at the sender site and receiver site. Find whether the data has correctly received by the receiver or not. [4

3. a) What is DNS? Briefly explain the Directory Services. [4

b) What is Bandwidth delay Product? Consider a LAN with maximum distances of 2km. At what bandwidth would propagation delay (at a speed of 2 X 10 m/s) equal transmit delay for 512 packets. What hat about 2000 byte packets? [4

4. a) What is virtual circuit network? How it is different from Circuit switching? [4

b) An Organization has a class C network 196.10.10.0 and wants to form subnets for five departments which having hosts are as 55 hosts,50 hosts,45 hosts and 25 hosts. Find the Subnet mask, Subnet ID and range of addresses. [4

5. a) Describe the E-mail architecture in detail. Explain why SMTP can not be used at the receiver end for receiving the E-mail. [4

b) Distinguish from the operational point of view between CSMA/CD and CSMA/CA protocol. Also explain why CSMA/CD is difficult to apply in wireless environments. [4

6. a) Illustrate with a figure where multiplexing and De-multiplexing takes place in the internet layers. [4

b) What is distance Vector routing Protocol? Explain with a suitable example of Count to infinity Problem. [4

7 a) What is stop and wait protocol? A Stop and wait protocol has a frame size of 100bits and transmission speed of 10 Mbps and ACK frame is 100bits.Distance and Velocity of Propagation is 100kms andm/sec respectively. Calculate bandwidth utilization of the link. [4

b) Difference between servers distributed large file and peer to peer based distribution of files among multiple clients. What is scalability of P2P architecture? [4

8. Write short notes on <u>any four</u> of the followings: [2 × 4

a) TCP Three-way Handshaking

b) UDP

c) NAT

d) Web Caching

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