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Paper Code: CS-601	**Roll No.**									

B. TECH.
SIXTH SEMESTER EXAMINATION, 2015-2016
COMPUTER NETWORKS

Time: 3 Hours ***Total Marks: 100***

Note:

i. This question paper consists of Five question.
ii. Your answers for each question should be precise and to the point.
iii. Answer to the parts of each section should be done at one place in your answer books
iv. You are required to attempt all the questions.

Q1: Answer any *FIVE* parts of the following. **[5×4 = 20]**

(a) What are two reasons for using layered protocols?
(b) Which layer performs error detection and correction in seven layer OSI model?
(c) What is the main difference between TCP and UDP?
(d) An analog signal of 100 Khz is to be transmitted over a digital channel. What is the minimum bandwidth required?
(e) What is the principal difference between connectionless communication and connection oriented communication?
(f) A system has an n-layer protocol hierarchy. Applications generate messages of length M bytes. At each of the layers, an h-byte header is added. What fraction of the network bandwidth is filled with headers?
(g) Enumerate the difference between distributed and client-server based system ?

Q2: Answer any *TWO* parts of the following. **[2×10 = 20]**

(a) What is the essential difference between message switching and packet switching?
(b) What are the problems encountered when an IEEE-803.3 CSMA/CD LAN as source is connected to an IEEE-802.5 Token Ring LAN?
(c) Data link protocols almost always put the CRC in a trailer rather than in a header. Why?

Q3: Answer any *TWO* parts of the following. **[2×10 = 20]**

(a) Explain distance vector routing with the help of an example? What is count-to infinity problem?
(b) What is the baud rate of the standard 10-Mbps Ethernet? Also Sketch the Manchester encoding for the bit stream: 0001110101.
(c) A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?

Q4: Answer any *TWO* parts of the following. **[2×10 = 20]**

(a) Consider the use of differentiated services with expedited forwarding. Is there a guarantee that expedited packets experience a shorter delay than regular packets? Why or why not?
(b) What are transport layer service primitives?
(c) Explain TCP window congestion control. If TCP can identify a packet loss reason due to congestion or error? explain.

Q5: Answer any *TWO* parts of the following. **[2×10 = 20]**

(a) ARP and RARP both map addresses from one space to another. In this respect, they are similar. However, their implementations are fundamentally different. In what major way do they differ?

(b) Can a computer have two DNS names that fall in different top-level domains? If so, give a plausible example. If not, explain why not.

(c) What is the basic difference between POP3 and IMAP?