

**COMPUTER NETWORKS**  
**SEM-V, 2012-13**  
**B.TECH**  
**UTTARAKHAND TECHNICAL**  
**UNIVERSITY**  
**(UTU)**

Time: 3 Hours

Total Marks: 100

**SECTION - I**

**4\*5=20**

Attempt any four question

1. Draw the block diagram of a general communication model and the function of each block.
2. What are the different types of transmission technology? Explain different types of network on the basis of transmission technology.
3. Describe the various technologies that can be used to form a LAN.
4. Discuss the important design issues for various layers. Write a short notes on connection oriented and connectionless services.
5. Explain briefly the bus backbone and star backbone also state and explain different types of delays.
6. Distinguish between TCP/IP and OSI reference models. Which model is more popular and why?

**SECTION - II**

**2\*10=20**

Attempt any two question

1. State the various design issues for the data link layer .Sketch the Manchester and differentiate Manchester encoding for the bit stream 0001110101
2. Explain about role of minimum distance in error correction and detection. Calculate CRC for a 10 bit sequence 1010011110. The generator polynomial is  $x^3 + x + 1$

3. Discuss the role of protocols in LAN technology with examples also state advantages and disadvantages of FDDI and Ethernet LAN technologies.

### SECTION- III

2\*10=20

Attempt any two question

1. A computer of 6 Mbps network is regulated by token bucket. The token bucket is filled at a rate of 1 Mbps. It is initially filled to capacity with 8 megabits. How long can be computer transmit at the full 6 Mbps.
2. What are the network design issues involved in designing a typical network and what are the supporting design tools available to make the design as a good design . Explain how these design tools help to address design issues.
3. An ATM network uses a token bucket scheme for traffic shaping . A new token is put into a bucket every 5 micro seconds. What is maximum sustainable net data rate excluding header bits?

### SECTION - IV

2\*10=20

Attempt any two question

1. Explain about the communication taking place between the session layers, presentation layer and transport layer. Also explain the duties of presentation layers.
2. Illustrate about the TCP header and working of TCP protocol. Also explain about the various fields of TCP header with the help of neat diagram.
3. What do you mean by congestion control and QoS? Justify: presentation layer carries out the job of transition. What are the various security threats?

### SECTION - V

2\*10=20

Attempt any two question

1. Explain how the transfer protocol client's servers are configured. Discuss the various FTP and telnet commands.
2. What do you mean by application layer? When web pages are sent out, they are prefixed by MIME headers why? Explain with reasons.
3. What do you mean by domain name system? How does it work? Explain resolution process. Explain about a typical resolution process in DNS.