(b) Draw the flowchart of the CSMA/CD protocol. **5**

(c) What is the difference between OSI model and TCP/IP model ? **5**

5. (a) What is the difference between UDP and TCP ? **5**

(b) A slotted ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces : **10**

(i) 1000 frames per second

(ii) 500 frames per second

(iii) 250 frames per second.

6. (a) What is the difference between IPv4 and IPv6 addressing ? **10**

(b) Explain the basic concepts of cryptography. **5**

7. (a) Explain the token bucket algorithm in detail. **5**

(b) Write short notes on the following : **10**

(i) DNS

(ii) WWW.

Roll No. ..... Total Pages : 04

016405

May 2024

B.Tech. (CEDS) (Fourth Semester)

Computer Networks (PCC-CS-602)

Time : 3 Hours] [*Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What is piggybacking ? **1.5**

(b) What are the number of cables required in mesh topology ? **1.5**

(c) The subnet mask for a particular network is 255.255.31.0. Which of the following pairs of IP addresses could belong to this network ? **1.5**

(i) 172.57.88.62 and 172.56.87.233

(ii) 10.35.28.2 and 10.35.29.4

(iii) 191.203.31.87 and 191.234.31.88

(iv) 128.8.129.43 and 128.8.161.55

(d) DSSS system spreads the baseband signal by.....the baseband pulses with a pseudo noise sequence. **1.5**

(e) What is the purpose of IEEE 802.11 specifications ? **1.5**

(f) A network using CSMA/CD has a bandwidth of 10 Mbps. If the maximum propagation time (including the delays in the devices and ignoring the time needed to send a jamming signal) is 25.6 μs, what is the minimum size of thcce frame ? **1.5**

(g) Station A uses 32 byte packets to transmit messages to Station B using a sliding window protocol. The round trip delay between A and B is 80 milliseconds and the bottleneck bandwidth on the path between A and B is 128 kbps. What is the optimal window size that A should use ? **1.5**

(h) What is the purpose of DHCP protocol ? **1.5**

(i) What is the purpose of SNMP protocol ? **1.5**

(j) What is the difference between physical address and logical address ? **1.5**

Part B

2. (a) What is the minimum hamming distance of the following strings 010, 011, 101 and 111. **10**

(b) Explain the FHSS technique for data transmission. **5**

3. (a) Explain the CRC coding and decoding mechanism by taking example of 1001 as dataword in C(7, 4) scheme. **5**

(b) Assume in stop and wait ARQ system, the bandwidth of the line is 1 Mbps and 1 bit takes 30 ms to make a round trip. What is the bandwidth delay product ? If the system data frames are 1000 bits in length, what is the utilization percentage of the link. **10**

4. (a) Explain why the window size should be $< 2^m$ in Go back n ARQ. where m is the size of the sequence number field in bits. **5**