

YMCA UNIVERSITY OF SCIENCE AND TECHNOLOGY, FARIDABAD
6th/8th B.TECH-EIC/ECE EXAMINATION (under CBS) C8
COMPUTER NETWORKS (Paper- EIC-306)

TIME : 3 hours

M.Marks : 60

Note : Part-I is compulsory and each question carry 2 marks.

Attempt any 4 question from Part-II. (Assume relevant data if found missing.)

PART I

- Q.No.1(1) Translation, encryption and compression are some of the duties of the presentation layer in OSI model. Which layer do you think is responsible for these duties in Internet layer.
- (2) The loss in a cable is usually defined in decibels per kilometre (dB/km). If the signal at the beginning of a cable with -0.3dB/km has a power of 2mW , what is the power of the signal at 5km .
- (3) What are the advantages of optical fiber over twisted-pair and co-axial cable?
- (4) What is the role of the address field in a packet travelling through a datagram network?
- (5) Discuss the concept of redundancy in error detection and correction.
- (6) A network using CSMA/CD has a bandwidth of 10Mbps . If the maximum propagation time is $25.6\mu\text{s}$ (including delays and losses), what is the minimum size of the frame?
- (7) Explain two node loop instability problem in distance vector routing.
- (8) Name the policies that can prevent congestion.
- (9) Why do we need DNS system when we can directly use an IP address?
- (10) The following is a TCP header in hexadecimal format.
05320017 00000001 00000000 500207FF 00000000
- (i) What is the source port number? [2x]
- (ii) What is the acknowledgment number?

PART II

- Q.No.2 (a) Explain CSMA techniques in detail. How CSMA/CD improve the performance of CSMA? [5x]
- (b) What are the four basic network topologies and cite an advantage of each type?
- Q.No.3(a) Given the data word 100101 and divisor 1001 design a code word $C(7, 4)$ for the corresponding data word. Use polynomial detection method?
- (b) A sender needs to send four data items 466F , 726F , 757A and 616E .
Answer the following:
- (i) Find the checksum at sender side.
- (ii) Find the checksum at receiver side if there is no error. [5]
- (iii) Find the checksum at receiver if the second data item is changed to 736F .
- Q.No.4(a) Explain the reason for moving from stop-and-wait ARQ Protocol to the Go-back-N ARQ Protocol in detail.
- (b) Explain distance vector routing in detail with an example. Explain two node loop instability problem of it and how it can be rectified. []
- Q.No.5(a) Explain why collision is an issue in a random access protocol but not in controlled access or channelizing protocols.
- (b) Compare TCP header and UDP header. List the fields in the TCP header that are missing from UDP header. Give the reason for their absence.
- Q.No. 6 Explain OSI reference model in detail.
- Q.No. 7 Write a short note on:
- (a) Cryptography
- (b) FTP