



Fifth Semester B.E. Degree Examination, June/July 2023

Computer Networks – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART – A

- 1 a. What is the difference between data and information? (02 Marks)
- b. What are the basic characteristics of data communication? Explain. (06 Marks)
- c. What are the functional roles of the following: (12 Marks)
 - (i) Physical layer
 - (ii) Data link layer
 - (iii) Network layer
 - (iv) Transport layer.
- 2 a. What do you mean by a composite signal? How does it help in digital data transmission? Explain. (04 Marks)
- b. Define : (i) Bit rate (ii) Bit length. (02 Marks)
- c. What is meant by Transmission impairment? Discuss 'Noise'. (10 Marks)
- d. What is the propagation time, if the distance between the two points is 12000 km? Assume propagation speed in the cable is 2.4×10^8 m/s. (04 Marks)
- 3 a. What is multiplexing? With neat diagram, explain FDM. (06 Marks)
- b. What is spread spectrum? Explain with an example direct sequence spread spectrum. (06 Marks)
- c. With a neat diagram, explain how message can be sent from one system to another using datagram networks. (08 Marks)
- 4 a. Define hamming distance. Explain simple parity check code C(5, 4) with $d_{\min} = 2$. How many bits can be corrected? (06 Marks)
- b. Find the code word $c(x)$, using CRC for the information $d(x) = x^3 + 1$ with generator polynomial $t(x) = x^3 + x + 1$. (08 Marks)
- c. Explain with an example. The computation of internet checksum. List the steps undertaken by the sender and receiver for error detection. (06 Marks)

PART – B

- 5 a. Explain briefly, with neat figure stop and wait ARQ and Go Back N ARQ. (12 Marks)
- b. Explain the frame format and transitional phases of point to point protocol. (08 Marks)
- 6 a. Explain : i) CSMA ii) CSMA/CD. (12 Marks)
- b. Describe 802.3 Mac frame. (08 Marks)
- 7 a. What is GSM? Explain. (08 Marks)
- b. What are the issues with Hidden and Exposed node? Explain. (06 Marks)
- c. Which are the layers of Bluetooth? Explain. (06 Marks)
- 8 a. Compare IPV₄ over IPV₆. (04 Marks)
- b. What is NAT? Explain with an example. (08 Marks)
- c. What is the need IP addressing scheme? Explain IPV₄. (08 Marks)

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