



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, Master of Computer Applications (MCA)

Semester End Examination; April / July - 2021

Computer Networks

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: Describe basic terminologies used for computer networking and data communication model with its components.

CO2: Classify various categories of networks and types of networking devices with their functions.

CO3: Explain the roles and functions of each layer of TCP/IP.

CO4: Analyze the routing table for a given subnet using various routing algorithm.

CO5: Identify how error free transmission held between two end nodes.

Note: I) Answer any FIVE full questions, selecting ONE full question from each unit.

II) Any THREE units will have internal choice and remaining TWO unit questions are compulsory.

III) Each unit carries 20 marks.

Q. No.	Questions	Marks	BLs	COs	POs
UNIT - I					
1 a.	What is Protocol layering? Explain the different layers of protocol with its functionality.	10	L1,L2	CO1	PO1,2,5,6,7
b.	Explain circuit and packet switching in detail with relevant diagrams.	10	L1,L2	CO1	PO1,2,5,6,7
UNIT - II					
2 a.	List out the principles of network applications. Explain any two of them.	10	L2,	CO2	PO1,2,3
b.	Discuss the services provided by the TCP protocol in the internet.	10	L2	CO2	PO1,2,3
UNIT - III					
3 a.	Explain the concept of Multiplexing and Demultiplexing in transport layer.	10	L2	CO3	PO2,10
b.	Explain reliable data transfer over a channel with bit errors.	10	L2	CO3	PO2,10
OR					
3 d.	What is alternating bit protocol? How it handles last data packets? Explain with flowchart.	10	L2	CO3	PO2,10
e.	Explain TCP congestion control with respect any one scenario.	10	L2	CO3	PO2,10
UNIT - IV					
4 a.	With a neat diagram, explain virtual circuit network with its three phases.	10	L2	CO4	PO1,2,5,8,10
b.	What is router? Explain the architecture of the router.	10	L2	CO4	PO1,2,5,8,10

OR

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|------|--|----|----|-----|--------------|
| 4 d. | Discuss IPV4 datagram format giving the relevance of each field. | 10 | L2 | CO4 | PO1,2,5,8,10 |
| e. | Explain link-state routing algorithm with an example. | 10 | L2 | CO4 | PO1,2,5,8,10 |

UNIT - V

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|------|---|----|----|-----|-----|
| 5 a. | Elaborate on the services offered by a link layer protocol. | 10 | L2 | CO5 | PO2 |
| b. | A bit stream 101110 is transmitted using the standard CRC method.
The generator is 1001. Show the actual bit string transmitted. | 10 | L2 | CO5 | PO2 |

OR

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|------|---|----|----|-----|-----|
| 5 d. | Discuss the types of ALOHA collision resolution protocol in detail. | 10 | L2 | CO5 | PO2 |
| e. | Discuss the process of DHCP protocol. | 10 | L2 | CO5 | PO2 |

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