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

(An Autonomous Institution affiliated to VTU, Belagavi)

Fifth Semester, B.E. - Computer Science and Engineering

Semester End Examination; Feb. - 2021

Computer Networks

Time: 3 hrs *Max. Marks: 100*

Course Outcomes

The Students will be able to:

CO1: Discuss the services provided by network layer such as Packetizing, Forwarding and Routing, IPV4 addressing for host-to-host communication.

CO2: Analyse and apply the routing algorithms such as distance vector, link state, hierarchical & multicast routing for transmitting reliable data through wired/wireless media.

CO3: Design and Construct a Network and its Performance can be measured based on various factors such as delay, throughput, and packet loss.

CO4: Discuss the service provided by transport layer such as process to process communication, addressing, multiplexing, de-multiplexing, error control, flow control and congestion control.

CO5: Design and Implement client - server paradigm or peer-to-peer paradigm using HTTP, DNS, TELNET, FTP protocols by knowing the importance of application layer in internet.

***Note**: I) **PART - A** is compulsory. **Two** marks for each question.*

*II) **PART - B**: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.*

Q. No.		Questions	Marks	BLs	COs	POs
		I : PART - A	**10**			
I	a.	List out four types of delays in packet switched network.	2	L1	CO3	PO2,3,5
	b.	Explain count to infinity problem with Distance Vector Routing.	2	L2	CO2	PO1,2,3
	c.	Describe the technique to improve the efficiency of bidirectional protocols.	2	L2	CO2	PO1,2,3
	d.	Define Karn's algorithms	2	L1	CO4	PO1,2
	e.	Distinguish between reactive fault management and proactive fault management.	2	L4	CO5	PO1,2,3,5
		II : PART - B	**90**			
		UNIT - I	**18**			
1	a.	Interpret the different approaches used by a packet switched network to route the packets. Differentiate between open loop and closed loop congestion control.	9	L2	CO1	PO1,2
	b.	Discuss classful addressing scheme. A large member of consecutive IP addresses is available starting at 198.16.0.0. Suppose that four organizations *A*, *B*, *C* and *D* request 4000, 2000, 4000 and 8000 addresses respectively and in that order. For each of these, give the first IP address assigned, the last IP address assigned and the mask in *W.X.Y.Z/S* notation.	9	L2	CO1	PO1,2
	c.	Describe the significance of different fields in IPV4 header format. Outline the security issues that are applicable to IP protocol.	9	L2	CO1	PO1,2

Contd….2

	UNIT - II	**18**			
2 a.	Explain the concept of hop count in RIP [Routing Information Protocol] and its performance. Mention the different timers used to support its operation.	9	L2	CO2	PO1,2,3
b.	Illustrate the working of path vector routing algorithm with an example.	9	L3	CO2	PO1,2,3
c.	What are the different approaches to multicasting? How DVMRP [Distance Vector Multicast Routing Protocol] works?	9	L1	CO2	PO1,2,3
	UNIT - III	**18**			
3 a.	List out the categories of ICMPv6 messages. What are the strategies devised for transition from IPv4 to IPv6?	9	L1	CO1	PO1,2
b.	Explain the services provided by transport layer.	9	L2	CO4	PO1,2
c.	Illustrate the working of stop and wait protocol with suitable diagrams.	9	L3	CO2	PO1,2,3
	UNIT - IV	**18**			
4 a.	Explain TCP connection establishment using three-way handshake with suitable diagrams.	9	L2	CO4	PO1,2
b.	What is SCTP [Stream Control Transport protocol]? Discuss the services and features of SCTP.	9	L2	CO4	PO1,2
c.	Explain iterative UDP communication with a flow diagram.	9	L2	CO5	PO1,2,3,5
	UNIT - V	**18**			
5 a.	Why HTTP is used? List and explain the methods of HTTP.	9	L1	CO5	PO1,2,3,5
b.	Interpret the purpose of DNS with necessary diagrams. Explain the different fields of resources records.	9	L2	CO5	PO1,2,3,5
c.	What is SNMP? Describe the role of SNMP and its protocols.	9	L2	CO5	PO1,2,3,5

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