U.S.N

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; February / March - 2022
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 and 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.	Give any one example each for class A and class B addressing.	2	L3	CO1	
b.	List any two applications of multicasting.	2	L1	CO2	
c.	Give IPv6 basic header format.	2	L1	CO3	
d.	Mention any two advantages of UDP.	2	L2	CO4	
e.	Briefly explain proxy server.	2	L2	CO5	
	II : PART - B	**90**			
	UNIT - I	**18**			
1 a.	Define congestion control. Explain open loop and closed loop congestion control mechanisms.	9	L2	CO1	PO1
b.	Explain class full addressing. Mention any two disadvantage of it. An organization is granted IP address block 80.70.56.0/24. Find the starting address and ending address of this block. Also the organization needs to have 3 sub-blocks to use in its subnets. Sub-block 1 has 60 addresses, sub-block 2 has 30 addresses, sub-block 3 has 8 addresses. Find the starting and ending address for each block.	9	L3	CO1	PO1,2,3

c.	Explain IPv4 header format in brief. The following IP datagram has arrived with partial header data (in hexadecimal). 49000056000100000486……… Calculate the following; i) Header length in bytes ii) Total packet size in byte iii) Data size of the packet in bytes iv) How many hops the packet can travel before being dropped?	9	L2	CO1	PO1,2,3

	UNIT - II	**18**			
2 a.	Explain Distance-Vector routing algorithm. Also explain the problem associated with Distance-Vector routing.	9	L2	CO2	PO1
b.	Explain link-state advertisements of OSPF routing.	9	L2	CO2	PO1
c.	Explain Distance-Vector multicast routing protocol.	9	L2	CO2	PO1
	UNIT - III	**18**			
3 a.	Explain IPv6 packet format.	9	L2	CO1	PO1
b.	Explain connection oriented service of transport layer with an FSM.	9	L2	CO4	PO1
c.	Explain Go-Back-N protocol with example.	9	L2	CO4	PO1
	UNIT - IV	**18**			
4 a.	Explain services provided by TCP.	9	L2	CO4	PO1
b.	Explain state transmission diagram of TCP.	9	L2	CO4	PO1
c.	Explain Iterative communication using TCP.	9	L2	CO4	PO1
	UNIT - V	**18**			
5 a.	Explain non-persistent and persistent connection of HTTP. Also list the methods used in HTTP.	9	L2	CO5	PO1
b.	Why do we need DNS? Explain recursive and iterative resolution used in DNS.	9	L1	CO5	PO1
c.	Explain the concept of SNMP with a neat diagram. Define the role of SNMP, SMI and MIB briefly.	9	L1	CO5	PO2

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