MODEL QUESTION PAPER : 2023-24

Course Code: 21CS51

VIDYAVARDHAKA COLLEGE OF ENGINEERING

Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi
Gokulam, 3rd Stage, Mysuru 570 002
Fifth Semester B.E. Examinations
COURSE NAME: Computer Networks

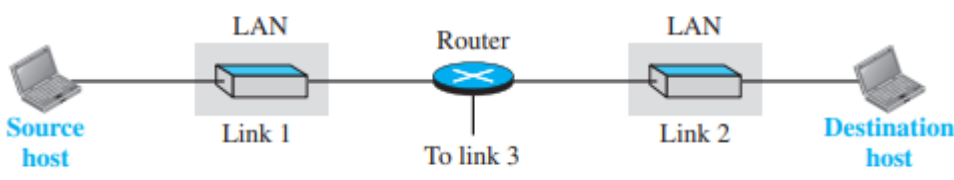Duration: 3 hours   Max. Marks: 100

INSTRUCTION TO STUDENTS
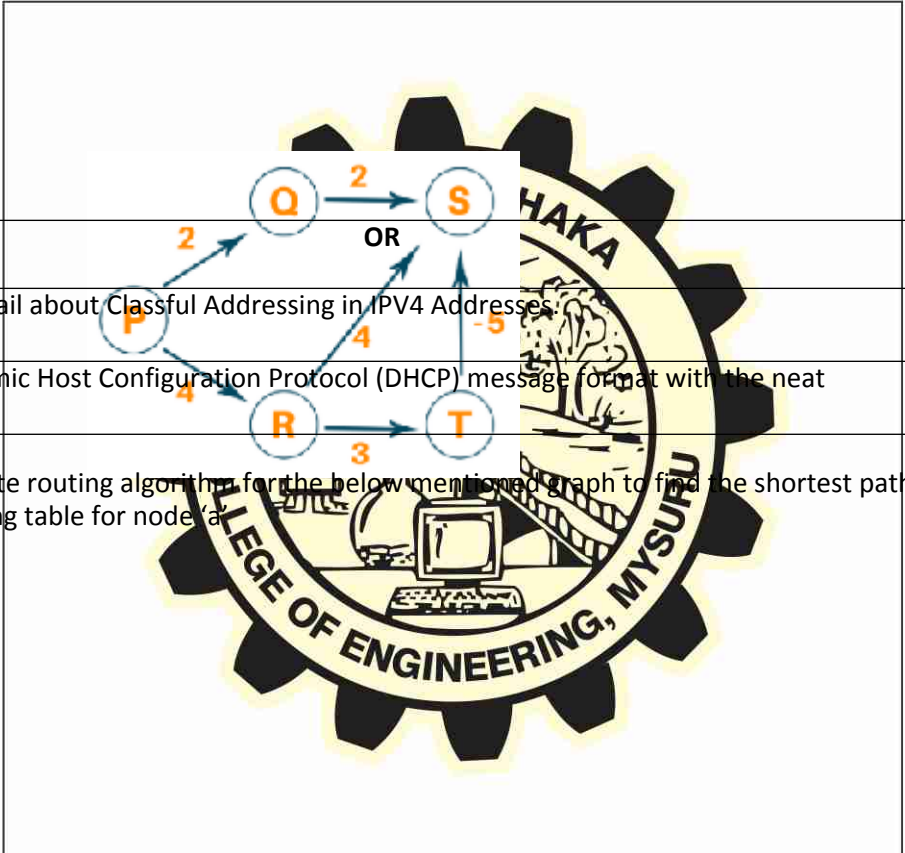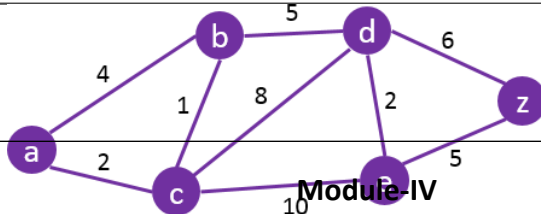
1) Answer <u>One Full</u> question from each module
2) Three module questions are compulsory and remaining two modules will have internal choice

Q. No.	Module-I	Marks	BL	CO
1.(a)	Explain Data communication and its component in detail.	5	L2	CO 1
1.(b)	Explain Physical Structure of data communication.	5	L2	C01
1.(c)	Construct TCP /IP Protocol Suite layers at each node for the given figure and explain the functions of each layer of TCP/Ip protocol suite.	10	L3	C02
	Module II			
2.(a)	Given message= 1011011 k=7 and generator polynomial P(X)=X3+x2+X0 , n=3 Determine the code word and illustrate the checker in the receiver using Cyclic Redundancy Check (CRC)	7	L3	CO 2
2.(b)	Solve the following questions: a. Write the polynomial representation of 101110? b. What is the result of shifting 101110 three bits to the left? c. Repeat part b using polynomials.	3	L3	C02
2. (c)	Analyze Stop-and-Wait protocol to explain how duplicate packets can be prevented with neat diagram.	10	L4	CO 3
	OR			
3.(a)	Pure ALOHA network transmits 200-bit frames on a shared channel of 200 Kbps. Determine the throughput if the system produces: i) 1000 frames/sec ii) 500 frames/sec iii) 250 frames/sec	6	L3	CO 2
3.(b)	A network using CSMA/CD has a bandwidth of 10MBPS. If the propagation time is 25.6 microsecond. Calculate minimum size of the frame?	4	L3	CO 2
3.(b)	Analyze some transmission scenarios of Parity-Check Code to explain how parity-check code	10	L4	CO

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	codeword created from this dataword is 10111, which is sent to the receiver. Explain with neat encoder and decoder diagram.			
	Module III			
4.(a)	Explain IPV4 and IPV6 datagram format with a neat diagram	10	L2	CO 1
4.(b)	Apply Bellman Ford algorithm for the below mentioned graph to find the shortest path and distance vector for source node ' Q '	10	L3	CO 2
	OR			
5.(a)	Explain in detail about Classful Addressing in IPV4 Addresses.	5	L2	CO 1
5.(b)	Explain Dynamic Host Configuration Protocol (DHCP) message format with the neat diagram.	5	L2	CO 1
5.(c)	Apply link-state routing algorithm for the below mentioned graph to find the shortest path and forwarding table for node ' a '	10	L3	CO 2
	Module-IV			
6.(a)	Illustrate the behavior of Connectionless and connection-oriented protocols using finite state machine in Transport Layer	10	L3	CO 2
6.(b)	Analyze TCP connection, why a SYN, SYN + ACK and FIN segment each consume a sequence number but an Ack segment carrying no data does not consume a sequence number? Explain with neat sketch.	10	L4	CO 3
	Module V			

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7.(a)	Demonstrate with an example how the GET and PUT methods are used in HTTP Request? Explain.	10	L2	C01
7.(b)	Analyze nonpersistent and persistent HTTP Connections, when client need to access file and image located in same server.	10	L3	CO 3