NARULA INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT

B.TECH/CSE/EVEN/6/CS601/2020-2021
PAPER TYPE: BACKLOG
YEAR: 2021

COMPUTER NETWORK

REGULATION:2016

CS601

TIME ALLOTTED: 3 HOURS FULL MARKS: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

1. Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

SL. NO.	Question	CO No.	Marks
(i)	Total no of flag bits in a TCP header is a) 4 b) 6 c) 3 d) 8	4	1
(ii)	If subnet mask is 255.255.192.0, then how many subnets are available? a) 2 b) 18 c) 4 d) 24	3	1
(iii)	The topology with highest reliability is? a) Bus topology b) Star topology c) Ring Topology d) Mesh Topology	1	1
(iv)	In OSI model dialogue control and token management are responsibilities of? a) Session Layer b) Network layer c) Transport layer d) Data link layer	2	1
(v)	Segmentation is done in a) Physical layer b) Data Link layer c) Network layer d) Transport layer	4	1
(vi)	Which of the following devices takes data sent from one network device and forwards it to all devices on the network regardless of the intended recipient? a) DNS Server b) Switch c) Hub d) Gateway	5	1
(vii)	The total number of links required to connect *n* devices using Mesh Topology is a) 2^n	1	1

	b) n(n+1)/2 c) n(n-1)/2 d) None of the above			
(viii)	Although they've fallen out of favor, which of the following devices is used to connect different network segments and manage the traffic between them? a) Bridge b) Hub c) Gateway d) Repeater	4	1
(ix)	Which one is connectionless a) TCP b) UDP c) Both TCP and UDP d) Neither TCP nor UDP	3	1
(x)	The address space of IPv4 is a) 1 b) 128 c) Infinite d) 2^{32}	3	1
(xi)	ICMP is primarily used for a) error and diagnostic functions b) addressing c) forwarding d) none of the mentioned	4	1
(xii)	Which layer is responsible for port to port delivery of packets? a) Transport layer b) Data link layer c) Physical layer d) Network layer	4	1

GROUP – B*
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

SL. NO.			CO No.	Marks
2.		Explain IPv4 datagram format with suitable diagram.	3	5
3.	(a)	Describe data flow direction with example.	2	3
	(b)	What is ISO/OSI?	2	2
4.		Generate the CRC code for the data word of 1010011110. The divisor is 1011	3	5
5.		List the responsibilities of Transport layer?	1	5
6.		Describe HDLC frame format with three different type frame control field.	4	5

GROUP – C*
(Long Answer Type Questions)

Answer any ***three*** from the following: **3×15=45**

SL. NO.	CO No.	Marks

7.	(a)	Explain Hamming code in error detection and correction system with a suitable example.	3	6
	(b)	Explain duplicate packet problem in stop and wait flow control. How could we solve this problem?	3	6
	(c)	Using stop and wait flow control we want to send 10 packets. Out of which every 4^{th} packet will lost, then how many packets are going to send totally?	3	3
8.	(a)	What are the differences between TCP and UDP?	4	4
	(b)	Explain TCP header structure in details.	4	7
	(c)	Explain the functionalities of Bridges in computer network.	4	4
9.	(a)	In an organization given Net Id 192.138.15.0.Now we have to create four subnets. Calculate no of usable host for each subnet, subnet id, broadcast address and subnet masking for each subnet.	3	8
	(b)	Explain Distance Vector Routing with a suitable example.	3	4
	(c)	Briefly discuss any two techniques to improve Quality of services.	4	3
10.	(a)	How proxy firewall works for network security? Explain digital signature.	5	3+2
	(b)	What is cryptography? Explain different types of key used in cryptography.	5	3+2
	(c)	Draw the architecture and write the operation of Cable Modem.	5	5
11.		Write short notes on (Any three)		
	(a)	Network Topology	1	5
	(b)	Socket	5	5
	(c)	Circuit switching	3	5
	(d)	WWW	5	5
	(e)	Email	5	5