NARULA INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT

B.TECH/ CSE/EVEN/6th SEM/CS601/2021-2022
YEAR: 2022
COMPUTER NETWORK
CS 601

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	Question	Marks	Co
(i)	Host to host connectivity is provided by a) Network layer b) Session layer c) Data link layer d) Transport layer	1	CO1
(ii)	The information to be communicated in a data communications system is called _____. a) Protocol b) message c) medium d) transmission	01	CO2
(iii)	IPv4 has _____ bit addresses. a) 16 b) 128 c) 64 d) 32	01	CO4
(iv)	If subnet mask is 255.255.192.0, then how many subnets are available? a) 2 b) 18 c) 4 d) 24	01	CO3
(v)	Which is a bit-oriented protocol for communication over point-to-point and multi-point links? a) Stop-and-wait b) HDLC c) Sliding window d) Go-back-N	01	CO3
(vi)	Which layer is responsible for port to port delivery of packets? a) Transport layer b) Data link layer c) Physical layer d) Network layer	01	CO4

(vii)	Which of the following is an application layer service? a) FTP b) Remote Login c) Mail service d) All of these	01	CO5
(viii)	In asymmetric key cryptography, the private key is kept by: a) Sender b) Receiver c) Sender and receiver d) All the connected devices to the network	1	CO5
(ix)	Which one is connectionless a) TCP b) UDP c) Both TCP and UDP d) Neither TCP nor UDP	01	CO3
(x)	The total number of links required to connect n devices using Mesh Topology are a) 2^n b) $n(n+1)/2$ c) $n(n-1)/2$ d) 2	01	CO1
(xi)	Which of the following is an application layer service? a) Remote login b) File transfer and access c) Mail service d) All of these	1	CO5
(xii)	A firewall is a) Used to protect a computer room from fires and floods b) A form of virus c) A screen saver program d) None of these	1	CO5

GROUP – B
(Short Answer Type Questions)
(Answer any three of the following) 3 x 5 = 15

SL	Question	Marks	Co
2.	Compare and contrast between OSI and TCP/IP layered models	5	CO1
3.	What is bit rate? What is baud rate? An analog signal carries 4 bits in each signal unit. If 1000 signal units are sent per second, find the baud rate and bit rate	5	CO2

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4.		Generate the CRC code for the data word of 1010101010. The polynomial to generate the divisor is x4+x3+1.	5	CO2
5.	(i)	For a Class C sub netting subnet Mask is 255.255.255.192	2	CO4
	(ii)	IP address 172.38.15.12.Write class, Net id and subnet mask of this IP.	3	CO4
6.		Explain "Stop & Wait ARQ protocol" with the help of diagram.	5	CO3

GROUP – C
(Long Answer Type Questions)
(Answer any three of the following)   3 x 15 = 45

SL		Question	Marks	Co
7.	(i)	How do the digital to analog conversion is carried out through ASK, FSK and PSK, explain with diagrams.	10	CO1
	(ii)	What is analog modulation? Explain different types of analog modulation techniques.	5	CO1
8.	(i)	What are the differences between Virtual Circuit and Datagram packet switching?	5	CO2
	(ii)	Deduce the expression for calculating the efficiency of stop and wait flow control.	10	CO2
9.	(i)	What are the differences between TCP and UDP?	5	CO2
	(ii)	Explain Distance Vector Routing with a suitable example.	5	CO3
	(iii)	Write the advantages of ICMP and IGMP over IPV4.	5	CO3
10.	(i)	Explain briefly ARP format.	5	CO4
	(ii)	How the connection is established in TCP using three-way handshaking? Explain in details.	5	CO4
	(iii)	What is ALOHA? Write down the differences of pure ALOHA and slotted ALOHA.	5	CO3
11.		**Write short notes (any three)**	3*5=15	
	(i)	Packet Switching	5	CO3
	(ii)	HDLC frame format	5	CO3
	(iii)	RSA	5	CO4
	(iv)	FTP	5	CO5
	(v)	Bellman –ford algorithm	5	CO3