GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
COMPUTER NETWORK (Backlog)
CS601

TIME ALLOTTED: 3HR   **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)

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

		Marks	CO No.
1 (i)	The _____ layer is responsible for moving frames from one node to the next. a) Physical layer b) Datalink layer c) Network layer d) Transport layer	1	CO1
(ii)	IPv6 has _____ bit addresses. a) 16 b) 128 c) 64 d) 32	1	CO4
(iii)	Which transmission medium has the highest speed in a network a) Coaxial cable b) Twisted pair cable c) Optical fiber d) Electrical cable	1	CO1
(iv)	Total no of flag bits in a TCP header is a) 4 b) 6 c) 3 d) 8	1	CO3
(v)	If subnet mask is 255.255.192.0, then how many subnets are available? a) 2 b) 18 c) 4 d) 24	1	CO3
(vi)	Connection establishment in TCP involves a …………..Hands shake. a) One-way b) Two-way c) Three-way d) None of the above	1	CO3

(vii)	Fiber optic cable works on
	    a) Polarization of light
	    b) Refraction of light
	    c) Total internal reflection of light
	    d) None of the above
		1	CO1

(viii)	Length of a port address-
	    a) 32 bits
	    b) 64 bits
	    c) 128 bits
	    d) 16 bits
		1	CO4

(ix)	Which layer is responsible for port to port delivery of packets?
	    a) Transport layer
	    b) Data link layer
	    c) Physical layer
	    d) Network layer
		1	CO4

(x)	The total number of links required to connect *n* devices using Mesh Topology is
	    a) 2^n
	    b) $n(n+1)/2$
	    c) $n(n-1)/2$
	    d) 2
		1	CO1

(xi)	Which of the following is an application layerservice?
	    a) FTP
	    b) Remote Login
	    c) Mailservice
	    d) All of these
		1	CO5

(xii)	Which one is connectionless
	    a) TCP
	    b) UDP
	    c) Both TCP and UDP
	    d) Neither TCP nor UDP
		1	CO3

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

		Marks	CO No
2.	What is congestion? Explain token bucket algorithm for congestion control.	5	CO4
3.	Explain PAN, LAN, MAN, and WAN with example.	5	CO1
4.(a)	Differentiate between bit error and burst error with example.	3	CO2
(b)	Differentiate between Pure Aloha and Slotted Aloha.	2	CO2
5.(a)	Generate the CRC code for the data word of 1010011110. The divisor is 1011	3	CO2
(b)	Write the name of the working layer(s) for the following devices- Hub, Switch, Router and Gateway.	2	CO3

			Marks	CO No
6.(a)	For a Class C sub netting subnet Mask is 255.255.255.192 How many sub- nets are there?		2	CO4
(b)	IP address 172.38.15.12.Write class, Net id and subnet mask of this IP.		3	CO4

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

			Marks	CO No
7. (a)	Define the basic components used for data communications and explain different data flow techniques with example.		5	CO1
(b)	Explain different types of digital to analog modulation process in detail.		5	CO1
(c)	What is the use of multiplexing in communication? Explain different types of multiplexing.		5	CO1
8. (a)	Explain Hamming code in error detection and correction system with a suitable example.		5	CO2
(b)	Explain the mode of data transfer in HDLC. Discuss the HDLC frame with diagram.		5	CO2
(c)	Explain duplicate packet problem in stop and wait flow control. How could we solve this problem?		5	CO2
9. (a)	What are the differences between TCP and UDP?		4	CO3
(b)	Explain TCP header structure in details.		7	CO3
(c)	What are 1-persistence, non-persistence and p-persistence strategies? What is vulnerable time?		4	CO3
10. (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.		8	CO4
(b)	Explain Distance Vector Routing with a suitable example.		4	CO4
(c)	Briefly discuss the Token Bucket algorithm.		3	CO4
11.	Write short notes (**any three**)		3x5=15	
(a)	Network Topology		5	CO1
(b)	Transmission Impairment		5	CO1
(c)	Packet Switching		5	CO3
(d)	CSMA/CD Vs CSMA/CA		5	CO3
(e)	WWW		5	CO4