GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
COMPUTER NETWORK
CS601

TIME ALLOTTED: 3 Hrs   **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.	1	CO1

    a) Physical layer
    b) Data link layer
    c) Network layer
    d) Transport layer

		Marks	CO No
(ii)	IPv4 has _____ bit addresses.	1	CO4

    a) 16
    b) 128
    c) 64
    d) 32

		Marks	CO No
(iii)	The information to be communicated in a data communications system is the _____.	1	CO2

    a) protocol
    b) message
    c) medium
    d) transmission

		Marks	CO No
(iv)	When data and acknowledgement are sent in the sameframe, this is called as	1	CO3

    a) Piggy packing
    b) Piggy backing
    c) Back packing
    d) Good packing

		Marks	CO No
(v)	If subnet mask is 255.255.192.0, then how many subnets are available?	1	CO3

    a) 2
    b) 18
    c) 4
    d) 24

(vi)	Protocols in which stations sense for a carrier and actaccordingly are a) CSMA b) ALOHA c) Multiple access d) Station model	1	CO3
(vii)	Which is a bit-oriented protocol for communicationover point-to-point and multi-point links? a) Stop-and-wait b) HDLC c) Sliding window d) Go-back-N	1	CO3
(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 layer service? a) FTP b) Remote Login c) Mail service d) All of these	1	CO5
(xii)	Which one is connection-less 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.	Explain the activities performed by data link layer.	5	CO1
3.	Compare and contrast between OSI and TCP/IP layered models	5	CO1
4.	Differentiate between bit error and burst error. Explain different error detection techniques.	5	CO2
5.	Generate the CRC code for the data word of 1010101010. The polynomial to generate the divisor is x^4+x^3+1.	5	CO2
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)	How do the digital to analog conversion is carried out through ASK, FSK and PSK, explain with diagrams?	10	CO1
b)	What is analog modulation? Explain different types of analog modulation techniques.	5	CO1
8. a)	Explain TCP header structure in details.	10	CO1
b)	What are the differences between TCP and UDP?	5	CO2
9. a)	What are the differences between Virtual Circuit and Datagram packet switching?	5	CO2
b)	Deduce the expression for calculating the efficiency of stop and wait flow control.	10	CO2
10.a)	Explain IP datagram with diagram.	5	CO3
b)	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.	10	CO3

			Marks	CO No
11.	Write short notes (**any three**)		3X5=15	
a)	Network Topology		5	CO1
b)	HDLC		5	CO3
c)	ALOHA		5	CO4
d)	Packet Switching		5	CO3
e)	WWW		5	CO4