GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
COMPUTER NETWORKING
IT603

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)	When data and acknowledgement are sent on the same frame, this is called_____ a) Piggybacking b) Backpacking c) Piggypacking d) None of these	1	CO3
(ii)	While transmitting odd-parity coded symbols, the number of 1's in each symbol is a) Odd b) Even c) a and b both d) Unknown	1	CO2
(iii)	The _____ field is used to order packets of a message. a) Urgent pointer b) Checksum c) Sequence number d) Acknowledgement number	1	CO3
(iv)	A Bluetooth frame needs _____ μs for hopping and control mechanism a) 625 b) 259 c) 3 d) A multiple of 259	1	CO4
(v)	Port address is of a) 128 Bits b) 36 bits c) 16 bits d) 48 bits	1	CO3

(vi)	In _____ layer the data unit is called frame a) Physical b) Network c) Transport d) Data link	1	CO1
(vii)	Sliding window protocol is technique used for a) Error Control b) Session Control c) Flow Control d) Concurrency Control	1	CO2
(viii)	In _____ there is no setup and teardown phase a) Circuit Switching b) Virtual Circuit Switching c) Datagram Switching d) None of these	1	CO5
(ix)	When 2 or more bits in a data unit has been changed during the transmission, the error is called a) Randomerror b) Burst error c) inverted error d) none of the mentioned	1	CO3
(x)	User datagram protocol is called connectionless because a) all UDP packets are treated independently by transport layer b) it sends data as a stream of related packets c) it is received in the same order as sent order d) none of the mentioned	1	CO2
(xi)	Which is not an application layer protocol? a) HTTP b) SMTP c) FTP d) TCP	1	CO1

GROUP – B
(Short Answer Type Questions)

(Answer any *three* of the following) **3 x 5 = 15**

		Marks	**CO No**
2.	Explain CSMA/CA technique.	5	CO2
3.	Explain HDLC frame format.	5	CO1
4a.	A block of class C address is granted to a small organization. One of the addresses is 205.16.37.39/28. What is the first and last address in the block?	4	CO3
4b.	What is the de-facto?	1	CO5
5a.	What is Bit stuffing?	1	CO4
5b.	What are the difference between connection-less and connection-oriented protocol. Give the example of connection-less and connection-oriented protocol.	4	CO1
6	Describe Checksum.	5	CO2

GROUP – C
(Long Answer Type Questions)

(Answer any *three* of the following) **3 x 15 = 45**

		Marks	CO No
7a.	Given a 10 bit sequence 1010011110 and divisor of 1011. Find CRC.	5	CO1
7b.	For five devices in a network, what is the number of cable links required for a mesh, bus, ring and star topology?	3	CO5
7c.	What are the transmission impairments in data communication?	3	CO3
7d.	Draw the line coding using Manchester encoding and AMI for a bit pattern 1110011.	4	CO2
8a.	Suppose a system uses Go-back-N protocol with window size 3. If a sender wants to transmit 6 frames and every 4th frame is lost, then calculate how many number of extra frames to be transmitted to the receiver.	6	CO4
8b.	An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows: i. The first group has 64 customers; each needs 256 addresses. ii. The second group has 128 customers; each needs 128 addresses. iii. The third group has 128 customers; each needs 64 addresses. Design the subblocks and find out how many addresses are still available after these allocations. Design the subnet.	9	CO1
9a.	Explain with diagram how the lost frame, delayed frame and lost acknowledgement are handled in Selective Repeat ARQ.	5	CO1
9b.	Let a data bit sequence M=1010110101 is transmitted but the receiver receives the sequence with any one bit corrupted. Use hamming code to identify the corrupted bit position so that it can be automatically corrected.	6	CO5
9c.	What are difference between circuit switching and packet switching? What is NAT? What is socket address?	4	CO4
10a.	Explain Link state routing?	5	CO2
10b.	Discuss about CDMA.	7	CO1
10c.	What is token Ring?	3	CO2
11.	Write Short note: (Any three)	3*5=15	
11a.	ARP	5	CO2
11b.	DNS	5	CO3
11c.	SMTP	5	CO4
11d.	Bluetooth	5	CO3