GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
DATA COMMUNICATION AND COMPUTER NETWORK
MCA20-204

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)

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

			Marks	CO No
1	(i)	A _____ is a device that forwards packets between networks by processing the routing information included in the packet. a) bridge b) firewall c) router d) hub	1	CO1
	(ii)	Which type of topology is best suited for large businesses which must carefully control and coordinate the operation of distributed branch outlets? a) Ring b) Local area c) Hierarchical d) Star	1	CO1
	(iii)	The data link layer takes the packets from _____ and encapsulates them into frames for transmission. a) network layer b) physical layer c) transport layer d) application layer	1	CO1
	(iv)	The length of an IPv6 address is? a) 32 bits b) 64 bits c) 128 bits d) 256 bits	1	CO3
	(v)	Communication channel is shared by all the machines on the network in _____. a) broadcast network b) unicast network c) multicast network d) anycast network	1	CO2
	(vi)	Which of the following protocols is the bit-oriented protocol? a) SSL b) http c) HDLC d) All of the these	1	CO2

(vii)	ARPANET stands for _____. a) Advanced Recheck Projects Agency Internet b) Advanced Recheck Projects Agency Network c) Advanced Research Projects Agency Network d) Advanced Research Projects Agency Internet		1	CO1
(viii)	What IP address class allocates 8 bits for the host identification part? a) Class A b) Class B c) Class C d) Class D		1	CO3
(ix)	Which of the following IP addresses can be used as (a) loop-back addresses? a) 0.0.0.0 b) 127.0.0.1 c) 255.255.255.255 d) 0.255.255.255		1	CO4
(x)	_____establishes the identity of the object by giving the location and the protocol or the mechanism to retrieve it. a) URI b) URN c) URL d) None of the above		1	CO5
(xi)	Which of the following algorithms is not used in asymmetric-key cryptography? a) RSA algorithm b) Diffie-Hellman algorithm c) Electronic code book algorithm d) None of the mentioned		1	CO5
(xii)	An attempt to make a computer resource unavailable to its intended users is called _____. a) Denial-of-service attack b) Virus attack c) Worms attack d) Botnet process		1	CO5

GROUP – B
(Short Answer Type Questions)
Answer any ***three*** from the following: **3×5=15**

			Marks	CO No
2.		Why we need layer architecture like the OSI model, explain in brief.	5	CO1
3.	(a)	What is private IP address?	2	CO3
	(b)	What are proxy servers, and how do they protect computer networks?	3	CO3
4.		How does the three-way handshaking protocol work?	5	CO1
5.		Explain in a brief different types of network topology.	5	CO1
6.		Explain in a brief static and dynamic Routing.	5	CO3

GROUP – C
(Long Answer Type Questions)
Answer any *three* from the following: **3×15=45**

			Marks	CO No
7.	(a)	Draw the diagram of IPv4 header format and describe each field.	8	CO2
	(b)	Describe different kinds of devices used in computer networks.	7	CO2
8.	(a)	Explain the working of the Distance Vector routing protocol and Link State routing protocol.	8	CO3
	(b)	Explain different features of Border Gateway Protocol .	7	CO3
9.	(a)	Differentiate between leaky bucket and token bucket techniques for congestion control.	8	CO4
	(b)	Differentiate between TCP and UDP protocols with examples.	7	CO4
10.	(a)	Describe the operation of Symmetric Key Cryptography with examples.	8	CO5
	(b)	Describe the operation of RSA technique.	7	CO5
11.		Write short notes on any three of the followings:	3x5=15	
	(a)	HTTPs	5	CO5
	(b)	DNS	5	CO5
	(c)	Frame Relay	5	CO5
	(d)	SMTP	5	CO5
	(e)	IP Security	5	CO5