MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY ,WEST BENGAL

SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY
END SEMESTER EXAMINATION

SIST/MCA /SEM-1ST /MCAC-102/2022-23

FEBRUARY – 2023

PAPER NAME: COMPUTER NETWORK | PAPER CODE:MCAC-102

SEMESTER : 1ST

Time : 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	**Choose the correct alternatives of the following : Any *ten***	**10 ×1 = 10**			
		MARKS	CO	PO	BL
i)	The topology with highest reliability is–	1	1	12	5
a.	Bus topology				
b.	Star topology				
c.	Mesh topology				
d.	Ring topology				
ii)	The key elements of a protocol are –	1	2	4	5
a.	Syntax				
b.	Semantics				
c.	Timing				
d.	All of these				
iii)	Which of the following can be handled by a gateway?	1	2	4	4
a.	Protocol conversion				
b.	Packet resizing				
c.	Data encapsulation				
d.	All of the above				
iv)	The two parameters used for measuring the performance of a network are –	1	5	8	4
a.	Throughput and delay				
b.	Power and delay				
c.	Power and throughput				
d.	Throughput and buffer size				

v)	The Hamming code is used for -	1	1	11	1
a.	Error Detection				
b.	Error Correction				
c.	Error Encapsulation				
d.	Both a and b				
vi)	Pure ALOHA has a maximum efficiency of	1	3	12	4
a.	18%				
b.	37%				
c.	10%				
d.	None of these				
vii)	Identify the IP address in the class B–	1	4	7	2
a.	125.123.123.2				
b.	191.23.21.54				
c.	192.128.32.56				
d.	10.14.12.34				
viii)	The .....field in IP Datagram is used for error detection.	1	1	7	1
a.	Urgent pointer				
b.	Checksum				
c.	Sequence number				
d.	Acknowledge number				
ix)	Which of the following is an interior routing protocol?	1	3	12	4
a.	RIP				
b.	OSPF				
c.	BGP				
d.	Both a and b				
x)	Which topology requires a central controller or hub?	1	3	11	4
a.	Star				
b.	Mesh				
c.	Ring				
d.	Bus				
xi)	What is the bandwidth of a signal whose lower frequency is 20 KHz and upper frequency is 60 KHz?	1	2	7	4
a.	80 KHz				
b.	3 KHz				
c.	1200 KHz				

d.	40 KHz				

GROUP – B

(Short Answer Type Questions)

Answer the following.		3 ×5 = 15			
		MARKS	CO	PO	BL
2.a.i	What is the MAC address?	2	1	8	4
ii	Explain the collision in Ethernet	3	2	4	2
OR					
2.b.i	Explain the advantages and disadvantages of optical fibre.	5	1	4	1
3.a.i	Difference between CSMA/ CA and CSMA/ CD.	5	3	11	2
OR					
3.b.i	Write down the difference between serial and parallel transmission.	2	3	7	2
ii	Write a note on Unguided media.	3	1	1	1
4.a.i	What is switching?	2	3	9	3
ii	Why switch is needed?	3			
OR					
4.b.	Explain in details of IPv4 classfull addressing.	5	4	4	2

GROUP – C

(Long Answer Type Questions)

Answer the following.		**3 ×15 = 45**			
		MARKS	CO	PO	BL
5.a.i.	What is Computer Network and its significance?	5	4	7	4
ii.	What is the difference between Hub, Switch, and Router?	5	5	6	2
iii.	Explain different types of Networks.	5			
	OR				
5.b.i.	Difference between Firewalls and Anti- virus.	5	3	10	1
ii.	What is DNS?	5	2	7	4
iii.	What are Leaky bucket and Token bucket algorithm ?Explain it.	5	4	4	3
6.a.i.	Compare and contrast Flow control and Error control.	5	5	9	2
ii.	What is UDP?	4	5	10	2
iii.	Compare between TCP and UDP.	6			
	OR				
6.b.i.	A slotted ALOHA network transmits 200-bit frames on a shared channel of 200kbps. What is he throughput if the system (all stations	10	4	9	2

	together produces. a.1000 frames/seconds b.500 frames/seconds c. 250 frames /seconds.				
ii.	Draw the flow diagram of pure ALOHA protocol.	5	2	8	2
7.a.i.	Explain VRC and LRC methods using example.	5	4	6	2
ii.	Define Error detection and correction with example.	5+5	3	7	4
	OR				
7.b.i.	Why modern computer use dynamic routing?	4	3	4	3
ii.	What is meant by multicast routing? Explain.	4	3	4	2
iii.	How can you compare IPv4 and IPv6?	3			
iv.	What are the limitations of IPv4? Explain.	4			