MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

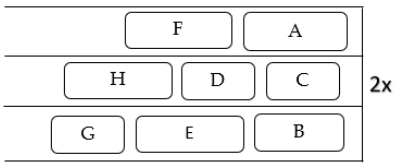
DEPARMENT OF MECHATRONICS

INTERNET WORKING FOR INDUSTRIES MTE 4057

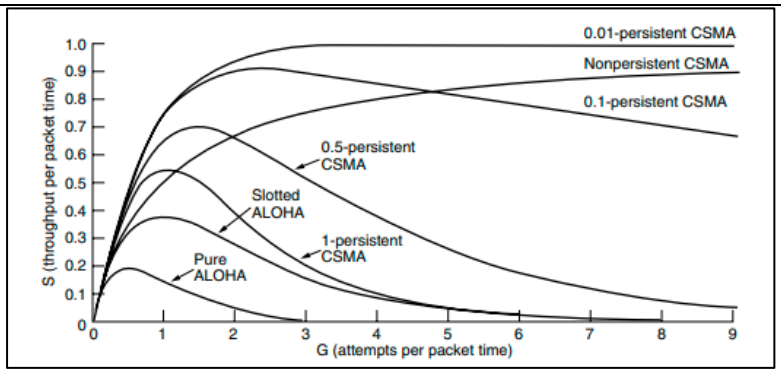
VII SEMESTER B-TECH END SEM EXAMINATION JAN 2024

MAKE UP

Time: 15 mins Max Marks: 50

Q no	Question	Marks	CO-PO-PLO	BL
1	Draw labelled diagram of IPv4 Packet Header and explain functionality of each slot in brevity	**2**	1-1,2,3-3,4,6,9,10	5
2	Consider the case given in Fig Q2, it shows the three-channel input scheme with single media to transmit the packets (Packet Schedule). Plan the Process with briefly mentioning the mechanism of weighted fair queueing, fill in the finish time and the output order for the following packets with showing the calculations for the same.  Fig Q2	**3**	2-1,2,3-3,4,6,9,10,11	6
3	Consider the case of server that is often prone to crashes. Explain the recovery mechanism from the transport layer point of view with the following case 1. Server first send ACK, then WRITE and sender always retransmits 2. Server first WRITE, then sends ACK and sender always retransmits 3. Server first WRITE, then sends ACK and sender never retransmits	**5**	4-1,2,3,7,8-3,4,6,9,10,11,12	5
4	Consider the Figure Q4 and evaluate on the CSMA techniques.	**2**	1-1,2,3-3,4,6,9,10	5

Packets	Arrival time	Length	Finish time	Output Order
A	0	8		
B	5	6		
C	5	10		
D	8	9		
E	8	8		
F	10	6		
G	11	10		
H	20	8		

				
5	Compare and contrast the Coaxial and Twisted Pair Cables for Data Transmission with labelled Diagrams	**3**	1-1,2,3-3,4,6,9,10	5
6	Perform the CRC Error Check with following details M=1010001101 P= $x^4 + x^3 + x^2 + 1$ FCS=5 Bits	**5**	2-1,2,3-3,4,6,9,10,11	3
7	Justify the desirable properties of a Routing Algorithm in case of congestions.	**2**	1-1,2,3-3,4,6,9,10	5
8	Evaluate the functioning of Slotted ALOHA	**4**	2-1,2,3-3,4,6,9,10,11	3
9	Analyse the Distance Vector Routing method with mentioning the Count to Infinity Problem	**4**	4-1,2,3,7,8-3,4,6,9,10,11, 12	4
10	Draw and explain the block diagram for Analog data modulated on Analog Signal.	**2**	2-1,2,3-3,4,6,9,10,11	4
11	Medium Access is the best problem faced in the communication industry. This is mainly due to intense competition among the transmission router to get hold of it and the huge rates of data transfer happening across the world throughout. With multiple servers, typically found in industry discuss in your view the best channel access protocol with minimum or negligible chances of collision in detail	**4**	4-1,2,3,7,8-3,4,6,9,10,11, 12	6
12	You are working as Network Engineer in an esteemed company A and have been tasked to design a system for efficient congestion control and prevention of router brakedown. Following is the case. Company A has a dedicated media with a host of servers to transfer the data to consumers through their ISP. Although the servers are powerful and are capable of handling high data traffic, but it is often seen that often the traffic peak above the handling limit and lead to breakdown of servers, which again take long time to boot up and resume the transmission, resulting into delay. Design a system with various congestion control mechanism is place to lead with best, bad and worse situations. You must mention the condition of why the mechanism is choosen and present through a flow chart	**4**	2-1,2,3-3,4,6,9,10,11	6

13	Draw the Phase Shifting Keying (PSK) for the binary code 00110100010	**2**	3-1,2,3,5-3,4,6,9,10,11	5
14	Compare and contrast with different Congestion Control techniques.	**4**	2-1,2,3-3,4,6,9,10,11	5
15	Justify the different requirements of Effective Data Communication	**4**	2-1,2,3,-3,4,6,9,10,11	5