

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrollment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, July 2020

Course: Data Communication & Computer Networks
Program: B.Tech-CSE+MAD
Course Code: CSEG 2009

Semester: IV
Time: 03 hrs.
Max. Marks: 100

Instructions: Attempt all the questions.

SECTION A

S.No.		Marks
Q 1	List down the factors which determine whether a communication system is a LAN or a WAN.	5
Q 2	How do the layers of TCP/IP protocol suite correlate to that of OSI model?	5
Q 3	State the difference between the byte-stuffing and bit-stuffing. Which one of these two is more popular?	5
Q 4	State the difference between classful and classless addressing in IPv4.	5
Q 5	Discriminate between the direct and indirect delivery of packets.	5
Q 6	Compute the value of receiver window for a host named 'Abhigyan' if the receiver, a host named 'Shivam' has a buffer size of 10000 bytes and 2500 bytes of received an unprocessed data.	5

SECTION B

Q 7	<p>. Attempt both the parts.</p> <p>a) A network that employs CSMA/CD has a bandwidth of 10 Mbps. If the maximum propagation time is $256e-7$ sec, what is the minimum size of frame?</p> <p>b) Explain why collision is an issue in a random access protocol but not in controlled access protocol and channelization protocol.</p>	10
Q 8	<p>Provide at least one address for each of the category mentioned below:</p> <p>a) Unicast MAC address</p> <p>b) Multicast MAC address</p> <p>c) Multicast IPv4 address (Assume any class of your choice)</p> <p>d) Broadcast IPv4 address (Assume any class of your choice)</p> <p>e) Well Known Port Address</p>	10
Q 9	<p>Compute the transmittable codeword for a dataword 110110101010 by a system</p> <p>a) which has implemented Hamming Code for Error Detection</p> <p>b) which has implemented Checksum scheme for Error Detection with block sizes of 4-bits</p>	10

Q 10	Compare the TCP header and the UDP header by listing the fields in the TCP header that are missing from UDP header. Give the reasons for their absence	10
Q 11	<p>Attempt both the parts.</p> <p>a) State an advantage of a hierarchical name space over a flat name space for a system with the scale of Internet.</p> <p>b) Which domain is used by your system/institution, generic or country?</p>	10
SECTION-C		
Q 12	<p>Let you be the network administrator in a company. Assume that you are given a block of addresses starting with 196.186.24.128/25 and the company wants you to distribute the address blocks to 5 departments with each receiving at least 10 addresses. Determine the followings:</p> <p>a) Network address for each department</p> <p>b) range of valid addresses for each department</p>	20

