

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

Online Examination- End Semester - May 2021

Course: Data Communication & Computer Networks

Semester: IV

Program: B.Tech Computer Science + LLB

Time 03 hrs.

Course Code: CSEG2009

Max. Marks: 100

SECTION A

1. Each Question carries 5 Marks.

2. Instruction: Attempt all the questions.

S. No.	Question	Marks	CO
Q 1	What are IEEE standards for LAN? Discuss their significance and illustrate their usefulness in detail.	5	CO3
Q 2	A periodic signal is decomposed into five waves with frequencies of 50, 250, 450, 650, and 850 Hz. Calculate its bandwidth.	5	CO1
Q 3	What do you mean by congestion in networks? What are the methods available for Collision avoidance?	5	CO5
Q 4	Write a short note on RIP, OSPF, and BGP.	5	CO4
Q 5	What is the significance of OSI model in computer networks?	5	CO2
Q 6	What do you mean by anonymous FTP?	5	CO6

SECTION B

1. Each Question carries 10 marks.

2. Instruction: Write short / brief notes.

Q 7	What is multiplexing? List different types of multiplexing techniques and outline the working of each.	10	CO5			
Q 8	What is DNS? Explain the functionality of DNS server with diagram.	10	CO6			
Q 9	What are the differences between Guided and Unguided media? Explain different types of guided media with proper diagram and examples.	10	CO1			
Q 10	<p>Your network administrator has given you the following Class B address and subnet mask</p> <p>IP Address: 172.20.208.0</p> <p>Subnet Mask: 255.255.240.0</p> <p>You have to provide the following information to your network administrator:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">Network Address</td> <td style="width: 33%; text-align: center;">Usable Host Range</td> <td style="width: 33%; text-align: center;">Broadcast Address</td> </tr> </table>	Network Address	Usable Host Range	Broadcast Address	10	CO4
Network Address	Usable Host Range	Broadcast Address				
Q 11	What are the different types of switched networks? Compare and contrast between Circuit switched and packet switched network (Datagram network, Virtual-circuit network) with diagram.	10	CO2			

SECTION-C

1. Each Question carries 20 Marks.

2. Instruction: Write long answer.

Q 12	<p>a. Illustrate the four most popular error detection methods in data communication with proper examples and flow chart. 10</p> <p>b. Frame (Message) 1101011011 Generator(Divisor): x^4+x+1 Using the above details, calculate the bits transmitted to receiving station using CRC. However, at receiving station the following bits have been received 11010110101110. Show the calculation whether there is any error while transmitting the bits or no error. 10</p> <p style="text-align: center;">OR</p> <p>a. When we can use Hamming Code? How can you encode a message by Hamming code? Encode the data or message bits 1011001 using even parity 11 bits Hamming code and generate it. 10</p> <p>b. What is ALOHA? Differentiate between Pure vs. Slotted ALOHA. A slotted ALOHA network transmits 200-bit frames using a shared channel with a 200-kbps bandwidth. Find the throughput if system (all stations together) produces 10</p> <ul style="list-style-type: none">i. 1000 frames per secondii. 500 frames per secondiii. 250 frames per second		CO3
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