Q. Code:273677

Reg. No. | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Sixth Semester

EC18603 – COMMUNICATION NETWORKS

(Electronics and Communication Engineering)

(Regulation 2018 / 2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Adopt the required functionality at each layer for given application.	**2**
CO 2	Recognize and Correct the error in the frame.	**3**
CO 3	Exercise the knowledge of addressing scheme and various routing protocols in data communication to select optimal path.	**3**
CO 4	Determine the flow of information from one node to another node in the network.	**3**
CO 5	Develop real time applications of networks.	**4**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	State the fundamental characteristics for effective data communication.	**1**	**2**
2.	Consider that the data word to be transmitted is 100100 and key is 1101. Determine parity bits for the given data.	**1**	**3**
3.	Analyze the flow control and error control.	**2**	**4**
4.	How much time in a Bluetooth one-slot frame is used for the hopping mechanism? And determine time for a three-slot frame and a five-slot frame?	**2**	**2**
5.	Identify the classes of the IP Addresses (a) 220.34.56.42 (b) 242.208.5.100 (c) 01110111 11110011 10000000 11011101	**3**	**3**
6.	Difference between TCP and UDP.	**3**	**3**
7.	Illustrate the term "soft state protocol" in the RSVP mean? How is that carried out?	**4**	**2**
8.	Mention the approaches used to improve QoS.	**4**	**3**
9.	Compare iterative resolution and recursive resolution in DNS.	**5**	**2**
10.	Encrypt the message "GOOD BYE" using a Caesar cipher with a key of 15.	**5**	**3**

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Explain the ISO-OSI reference model with a neat layering diagram and list out the functionalities of each layer.	**(14)**	**1**	**2**

(OR)

(b)	Demonstrate various categories of networks with a neat sketch. With a layer diagram, describe the responsibilities of each layer in TCP/IP protocol suite.	**(14)**	**1**	**2**
12. (a)	Explain the operation of the bit-oriented protocol HDLC with the required frames.	**(14)**	**2**	**3**
	(OR)			
(b)	Describe the two types of sliding window protocols for flow control with examples for different scenarios.	**(14)**	**2**	**3**
13. (a)	Explain in detail the various error reporting and query messages of ICMP.	**(14)**	**3**	**3**
	(OR)			
(b)	**(i)** Explain the operation of Protocol-Independent Multicast (PIM).	**(6)**	**3**	**3**
	(ii) An organization is granted a block of addresses with the beginning address 12.12.44.0/24. There are $2^{\wedge(32-24)}$= 256 addresses in this block. The organization needs to have 7 subnets as shown below: a. two subnets, each with 64 addresses. b. two subnets, each with 32 addresses. c. three subnets, each with 16 addresses. Design the subnets.	**(8)**	**3**	**3**
14. (a)	With neat diagram, elaborate the TCP congestion control mechanism.	**(14)**	**4**	**3**
	(OR)			
(b)	Describe RSVP protocol and Differentiated Services with a neat diagram.	**(14)**	**4**	**3**
15. (a)	Why do we need Domain Name System (DNS)? What is the purpose of the inverse domain? How does recursive resolution differ from iterative resolution?	**(14)**	**5**	**3**
	(OR)			
(b)	With relevant illustrations, Outline the components and protocol used in Electronic mail.	**(14)**	**5**	**3**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	For the following values: e = 13, d = 37, and n = 77 use the RSA algorithm to encrypt the message "QUANTUM CRYPTOGRAPHY". Carry out the encryption and decryption. Draw the block diagram.	**(10)**	**5**	**4**

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