

Reg. No.

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B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Sixth Semester

EC18603– COMMUNICATION NETWORKS*(Electronics and Communication Engineering)***(Regulation 2018)****TIME: 3 HOURS****MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Choose the required functionality at each layer for given application.	2
CO 2	Detect and Correct the error in the frame.	3
CO 3	Apply the knowledge of addressing scheme and various routing protocols in data communication to select optimal path.	3
CO 4	Trace 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. Draw a hybrid topology with a ring backbone and two bus networks.	1	2
2. In a network with 5 devices find the total number of cable links required for (a) mesh topology (b) star topology.	1	1
3. Differentiate Piconet and Scatternet.	2	4
4. Find the Hamming distance for the following pairs of words. (a) d (000,011) (b) d (10101,11110)	2	3
5. Define piggybacking and its significance.	3	1
6. List out the various transition strategies defined for the transition from IPv4 to IPv6.	3	4
7. Differentiate TCP and UDP.	4	4
8. "A priority queue can provide better QoS than the FIFO queue". Justify.	4	4
9. Compare HTTP with persistent and Non-persistent Connection.	5	4
10. Distinguish between network applications and application-layer protocol.	5	4

PART- B (5 x 14 = 70 Marks)

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

(OR)

(b) Describe in detail about the various categories of network topologies with a neat diagram and also describe its advantages and disadvantages. (14) 1 2

12. (a) In order to transmit the message $M = 1\ 1\ 1\ 0\ 1\ 1$ with divisor bit as $C = 1\ 1\ 0\ 1$ whose polynomial is given by $C(x) = x^3 + x^2 + 1$. Formulate the message that should be transmitted using polynomial long division and predict the occurrence of errors in the receiver. (14) 2 3

(OR)

(b) Design and discuss the architecture of IEEE 802.11 with neat diagram. (14) 2 3

13. (a) Analyze the classful IP address with its types and examples. (14) 3 4

(OR)

(b) Illustrate in detail the various error reporting and query messages of ICMP. (14) 3 4

14. (a) Explain how QoS is provided through Integrated Services and Differentiated Services. (14) 4 4

(OR)

(b) Examine the concept of congestion control in TCP. (14) 4 4

15. (a) In RSA, given $p = 107$, $q = 113$, $e = 13$, and $d = 3653$, encrypt the message "THIS IS TOUGH" using 00 to 26 (A: 00 and space: 26) as the encoding scheme. Decrypt the ciphertext to find the original message. (14) 5 3

(OR)

(b) Explain in detail how electronic mail application is carried out in a network. Also explain the protocols used in this application. (14) 5 3

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Evaluate the following with neat sketch.	(10)	1	5
	(i) Bluetooth (5)			
	(ii) Zigbee (5)			
