Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)

Course Code: CST 303

Course Name: COMPUTER NETWORKS

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Illustrate layering principle with necessary diagrams.	3
2		What is the propagation delay if distance between two points is 12,000 km? Assume propagation speed to be 2.4×10^8 m/s in cable.	3
3		Show how the data field is managed in the Ethernet frame format.	3
4		Differentiate between bridges and switches.	3
5		Illustrate the optimality principle in routing.	3
6		Identify two methods by which multicast routing is handled by network layer.	3
7		In IP, the checksum covers only the header and not the data. Identify the reason for selecting this design.	3
8		Differentiate between Open loop and Closed loop approaches for congestion control. Give one example for each.	3
9		Why is Transport layer called true End to End layer? Why is flow control and error control used in Transport layer in addition to data link layer ?	3
10		Describe the ports used by the FTP with suitable diagram.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Justify why TCP/ IP reference model is called as a protocol stack model. Describe TCP/IP model with suitable diagrams.	8
	b)	Compare LAN, MAN, WAN.	6
12	a)	Compare the types of networks formed based on topology. Discuss the advantages and disadvantages of each type.	8
	b)	Illustrate the construction of optical fiber and justify how this reduces the interference. Draw the structure of optical fiber.	6

Module -2

13	a)	Summarize about the high-speed LANs specified in IEEE standard.	6
	b)	Compare Go back N protocol with Selective Repeat protocol using required diagrams.	8
14	a)	Discuss about the frame formats of HDLC protocol.	8
	b)	Write short notes on any two carrier sense multiple access protocols used in IEEE standards.	6

Module -3

15	a)	Compare the features of link state routing with distance vector routing.	8
	b)	Differentiate between the implementation of datagram subnet and virtual circuit subnet.	6
16	a)	What is count to infinity problem? Describe two techniques to solve the count to infinity problem in distance vector routing algorithm.	6
	b)	Identify and describe the scheduling techniques to improve the Quality of Services (QoS).	8

Module -4

17	a)	Illustrate the sub-netting concept. A company is granted the site address 181.56.0.0 (class B). The company needs 1000 subnets. Find the number of subnets possible and hosts which can be connected in each subnet.	8
	b)	Identify the characteristics of BGP.	6
18	a)	Describe how does OSPF perform routing in larger networks? Also explain the different types of OSPF messages.	7
	b)	Explain the purposes of using ARP and RARP in the network layer. Also describe the working of each.	7

Module -5

19	a)	Describe the TCP congestion control approaches with necessary diagrams.	8
	b)	Demonstrate the UDP segment structure.	6
20	a)	Summarize the architecture of electronic mail system with neat diagram.	9
	b)	Identify and describe the DNS attacks.	5

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