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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R, S) / S3 (PT) (R, S) Examination December 2023 (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		Differentiate between connection-oriented and connection-less services.	3
2		Define bandwidth-delay product with example.	3
3		Differentiate between 1-persistent and p-persistent CSMA.	3
4		Assuming even parity, find the parity bit for each of the following data: i. 1011010 ii. 000000 iii. 10010001	3
5		Distinguish between routing and forwarding.	3
6		Describe any two techniques for achieving good Quality of Service.	3
7		Write notes on internet multicasting.	3
8		List the IP address ranges and subnet masks of class A, class B and class C.	3
9		List the transport service primitives.	3
10		How recursive query resolution is performed in DNS?	3

PART B

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

Module -1

11	a)	Write the functions of data link and network layer of OSI reference model.	4
	b)	Explain the various physical topologies with neat sketches.	10
12	a)	How computer networks are categorized based on scale? Explain the features of each network.	8
	b)	Differentiate between Manchester encoding and Differential Manchester encoding with suitable example.	6

Module -2

13	a)	Explain the various framing methods used in data link layer.	10
	b)	Which are the different types of errors? Explain with examples.	4

14	a)	Draw and explain the frame format of IEEE 802.11.	7
	b)	A bit stream 10011101 is transmitted using the CRC method. The generator polynomial is $x^3 + 1$. Show the actual bit string transmitted.	7

Module -3

15	a)	Explain distance vector routing algorithm with an example.	8
	b)	Explain any three closed loop congestion control techniques.	6
16	a)	Explain how routing is performed using link state algorithm. Illustrate with an example.	10
	b)	Write notes on load shedding.	4

Module -4

17	a)	Illustrate subnetting with an example.	7
	b)	Draw the IPv6 header. Explain the significance of each field.	7
18	a)	Describe the features of BGP. How does BGP avoid count to infinity problem?	9
	b)	Draw and explain BOOTP message format.	5

Module -5

19	a)	How does FTP handle file transfer operation?	6
	b)	What is the significance of SNMP? Describe its components.	8
20	a)	Three-way handshake procedure is used to establish a connection in TCP rather than two-way handshake. Justify.	7
	b)	Describe the working of electronic mail system.	7

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