Reg No.:_____ **0520MCA104052302** Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Second Semester MCA(Two Year) Degree (S,FE) Examination December 2024

Course Code: 20MCA104

Course Name: ADVANCED COMPUTER NETWORKS

Max. Marks: 60 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Explain two different network architectures.	(3)
2	Find propagation time and transmission time for a 2.5Kbyte message if the bandwidth of the network is 1Gbps. Assume that the distance between sender and receiver is 20000km and the speed of light is 2.4×10^8 m/s.	(3)
3	Demonstrate how the Stop and Wait protocol works in reliable data transfer.	(3)
4	Explain the UDP datagram header format.	(3)
5	Demonstrate with example how the link state algorithm works in routing packets.	(3)
6	Describe the Border Gateway Protocol and its session types.	(3)
7	Define Hamming code. Apply the strategy for generating the parity bits from the data word 1011.	(3)
8	Explain how pure ALOHA avoids packet collision during data communication with flowchart.	(3)
9	Describe Virtual Private Network with its type.	(3)
10	List and explain any three active attack which affects the security in data communication.	(3)

PART B

Answer any one question from each module. Each question carries 6 marks.

Module I

11	Discuss on the following terminologies a) FTP b) HTTP c) DNS d) IMAP	(6)

OR

12 What is the concept of Quality of Service in computer networks, explain various techniques used to improve it. (6)

Module II

13 Explain the working Transmission Control Protocol with its various features. (6)

OR

14 What is the use of multiplexing in the transport layer, explain its types. (6)

Module III

15 An ISP is granted a block of addresses starting with 180.100.0.0. The ISP needs to distribute these addresses to three groups as follows (6)

a) First group have 64 customers, each needs 256 addresses
b) First group have 128 customers, each needs 128 addresses
c) First group have 128 customers, each needs 64 addresses.

Allocate the addresses to each group and find the remaining unallocated addresses

OR

16 Compare classful addressing with classless addressing used in IPv4 with examples. (6)

Module IV

17 Explain how Carrier Sense Multiple Access/Collision Detection is performed in the data link layer, and draw the ethernet frame format. (6)

OR

18 a) Analyse and describe how Cyclic Redundancy Check is performed in data communication. (2)

b) Using Cyclic Redundancy Check, generate the code word for the data polynomial $x^5 + x^2$ with key polynomial $x^3 + x^2 + 1$ at sender site and, at receiver site check the correctness of the data received. (4)

Module V

19 Explain the use of firewalls and what are its different types. (6)

OR

20 Explain IEEE 802.11 with its architecture and frame format. (6)

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