

B

1100CST303122106

Pages: 2

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?<br>Assume propagation speed to be $2.4 \times 10^8$ 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**

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|----|---|---|
| 11 | a) Justify why TCP/ IP reference model is called as a protocol stack model.<br>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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