Register No.: .... Name: ....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022
COMPUTER SCIENCE AND ENGINEERING
(2020 SCHEME)

Course Code :   20CST303

Course Name: Computer Networks

Max. Marks :   100   **Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. What is a network? Explain the different parameters for measuring the performance of a network?
2. What are the various network control devices?
3. What is ALOHA? Compare different ALOHA protocols.
4. Describe Error Detection in Data link Layer.
5. Explain in detail about the Flooding.
6. Define Optimality Principle. Explain Sink tree.
7. What is IP address? State IP address classes.
8. The Protocol field used in the IPv4 header is not present in the fixed IPv6 header. Why?
9. When Web pages are sent out, they are prefixed by MIME headers. Why?
10. Comment on User Datagram Protocol (UDP).

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

MODULE I

11.   a)   Explain OSI reference architecture in detail.   (10)
        b)   Discuss on Topologies in Network and its applications.   (4)

OR

12.   a)   Describe the TCP/IP Reference model in detail.   (8)
        b)   Compare Twisted Pair, Coaxial Cable and Optical Fiber guided Transmission media.   (6)

MODULE II

13.   a)   Explain the working of IEEE 802.11 MAC sublayer.   (6)
        b)   Explain Sliding window protocols. Discuss Selective Repeat ARQ.   (8)

OR

14. a) What are the design issues of Data Link Layer? Explain. (7)
    b) Explain briefly about the 1-Persistent and Non-persistent CSMA protocols. (7)

MODULE III

15. a) Differentiate between Virtual Circuits and Datagram Subnets. (7)

    b) Illustrate shortest path routing algorithm with suitable example. (7)

OR

16. a) What do you mean by QoS. Discuss the techniques for achieving good QoS. (7)
    b) Discuss Distance Vector routing algorithm with an example. (7)

MODULE IV

17. a) What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask? (7)

    b) How many bytes does each Class of IP address use to represent network and host IDs? How many number of networks and hosts can be represented using the IP address classes? (7)

OR

18. a) Demonstrate the IPv4 Packet format with the help of figure. (6)
    b) Explain the Address resolution problem using Address Resolution Protocol (ARP). (8)

MODULE V

19. a) What is the role of Simple Mail Transfer Protocol (SMTP) in E-mail? (6)
    b) Discuss on the TCP congestion control. Explain Token bucket algorithm. (8)

OR

20. a) Discuss in detail applications of : File Transfer Protocol (FTP), World Wide Web (www),Multipurpose Internet Mail Extension (MIME). (9)

    b) Discuss about Simple Network Management Protocol (SNMP). (5)

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