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SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (S), FEBRUARY 2024
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 are the different types of transmission technology widely used in computer networks? Explain.
2. What will be the propagation time and the transmission time for a 2.5-kbyte message when the bandwidth of the network is 1 Gbps? Assuming the distance between sender and receiver is 12, 000 km and speed of light is 2.4 * 10^8 m/s.
3. Write short note on Ethernet?
4. Cite out the difference between switch and hub?
5. Explain Count-Infinity Problem in Distance Vector Routing Algorithm?
6. List out the algorithms used for congestion control in network?
7. Differentiate BOOTP and DHCP protocols.
8. Compare the three types of routing performed by BGP?
9. What is UDP ? Draw and Explain the UDP Header Format?
10. Demostrate the basic functions of e-mail and the protocol used?

PART B

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

MODULE I

11. a) With a neat diagram, explain Open Systems Interconnection (OSI) Reference Model. (7)
    b) Sketch the waveform in Manchester and Differential Manchester Encoding for the bitstream 11000110010. (7)

OR

12. a) Compare Twisted Pair, Coaxial Cable and Optical Fiber guided transmission media. (9)
    b) Illustrate with the help of a diagram, the construction of optical fiber and justify how this reduces the interference. (5)

MODULE II

13. a) Explain the working of IEEE 802.11 MAC sublayer? (7)
    b) Explain the Data link layer design issues? (7)

OR

14. a) How collision is avoided in CSMA/CA? Describe the different strategies used for this? (7)
    b) Cite the various Sliding Window Protocol used in Computer Network? (7)

MODULE III

15. a) Illustrate Distance Vector Routing algorithm with an example. (10)
    b) Explain the characteristics of Routing Information Protocol (RIP). (4)

OR

16. a) Explain how routing is performed using link state algorithm? Illustrate with an example. (8)
    b) What is QoS? Explain any two methods to ensure QoS? (6)

MODULE IV

17. a) Illustrate the Dynamic Host Configuration Protocol with packet format? (6)
    b) Explain the address resolution problem using Address Resolution Protocol (ARP) and Reverse Address Resolution Protocol (RARP) with an example network. (8)

OR

18. a) Draw IPv6 Datagram format and explain its features. (8)
    b) What is the usage of Internet Control Message Protocol (ICMP)? (6)

MODULE V

19. a) Explain the principal Domain Name System (DNS) resource record types for IPv4 (7)
    b) With the help of a basic model, explain the working of World Wide Web (WWW). (7)

OR

20. a) Explain the three different phases in a TCP transmission with the help of diagrams. (10)
    b) What is the role of Simple Network Management Protocol in Networking? (4)

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