MCA   (Sem.–3)
ADVANCED COMPUTER NETWORKING
Subject Code : PGCA1925
M.Code : 90798
Date of Examination : 14-12-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Answer the following :

    a) What is World Wide Web?

    b) Name the different layers of TCP/IP model.

    c) Discuss briefly about Fiber optics communication.

    d) Why is logical link layer required?

    e) Comment on "channel allocation".

    f) Describe the services offered by MAC layer.

    g) Enlist any two issues of Flooding algorithm.

    h) How is troubleshoot provided by netstat?

    i) Discuss two features of TCP.

    j) Name any two protocols at Application layer of TCP/IP model.

SECTION-B

2. Suppose two Hosts, A and B, are separated by 20,000 kilometers and are connected by a direct link of R = 2 Mbps. Suppose the propagation speed over the link is 2.5 * 108 meters/sec.

   a) Calculate the bandwidth-delay product, R * dprop.

   b) Consider sending a file of 800,000 bits from Host A to Host B. Suppose the file is sent continuously as one big message. What is the maximum number of bits that will be in the link at any given time?

   c) Provide an interpretation of the bandwidth-delay product.

   d) What is the width (in meters) of a bit in the link? Is it longer than a football field?

   e) Derive a general expression for the width of a bit in terms of the propagation speed s, the transmission rate R, and the length of the link m.

3. What is the various transmission media used in computer networks? Discuss the wireless transmission media in detail.

4. What are the steps in the error control mechanism at the Data Link Layer? Discuss the three techniques for error control in the Data Link Layer.

5. What do you mean by Domain Name System (DNS)? Explain how DNS works? Discuss in detail about DNS records and DNS messages.

SECTION-C

6. Write a short note on the following :

   a) MAC Protocols

   b) IEEE 802.11standards

7. a) Describe the evolution of 2.5 G TDMA standards.

   b) Write a note on Bluetooth technology.

8. What is the difference between proactive and reactive routing protocols? Explain in detail any two routing protocols used in Adhoc networks.

9. a) Provide a simple overview of IPv6 and compare it with IPv4.

   b) Write down a note on the evolution of wireless communication systems.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.