ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
M.Sc(COMPUTER SCIENCE) –I SEMESTER
END SEMESTER EXAMINATION: NOVEMBER 2020
CS7418 : ADVANCED COMPUTER NETWORKS AND NETWORK SECURITY

Time- 2 1/2 hrs   Max Marks-70

This Question paper contains two printed pages and one section.

Answer any seven questions: 7 * 10 = 70

1. a. Explain the protocol standard of TCP/IP.   (5)
    b. Show the structure of a TCP packet and briefly explain the functions of the different fields.   (5)

2. a. What is an IP address? Mention the classes of IP address with example.   (5)
    b. What is the purpose of subnet masking? Given a single network IP 192.200.10.0, divide it into five smaller networks (192.200.10.16, 192.200.10.32, 192.200.10.48, 192.200.10.64, 192.200.10.80   (5)

3. a. Illustrate the working of bootstrap protocol.   (5)

    b. What is DNS? With a neat diagram explain the different domains of DNS to resolve the URL address   (5)

4. a. Differentiate between Connection oriented and Connectionless datagram delivery.   (5)

    b. Explain the working of Fragmentation and Reassembly with an example.   (5)

5. a. What is Routing? Explain any one interior gateway routing protocol.   (5)

    b. How the routing table differs for class full and classless IP address? Explain with a block diagram   (5)

6. Define Security attack, Security mechanism and Security service and explain different type of attack with a suitable example.   (10)

7. a. Encrypt the plain text "pay more money" using hill cipher with the key below:

Key

$$\begin{pmatrix} 17 & 17 & 5 \\ 21 & 18 & 21 \\ 2 & 2 & 19 \end{pmatrix}$$

Show calculation and cipher text   (6)

b. Differentiate between symmetric and asymmetric key cryptography   (4)

8. a. What are the different firewalls Configurations? Explain it.   (6)

   b. Describe why Data Encryption standards are essential in network security?   (4)

9. a. What are virtual private networks? Why it is required in networks? Mention its importance. (6)

   b. Mention the different approaches of Intrusion Detection Systems.   (4)