2604E225

Candidate's Seat No :_____

Integ MSc. CSF Semester-2 (Rep.) Examination

ICSF-203

Fundamental of Computer Architecture

Time : 2-30 Hours] **April-2024** **[Max. Marks : 70**

Instructions: Illustrate your answers with neat diagrams wherever necessary.

Que 1 Write the following

(i) Define the OSI model and elaborate on its seven layers. For each layer, provide examples of protocols and describe their functions in the context of data communication. (7 Marks)

(ii) Differentiate between LAN, WAN, MAN, and PAN networks. Provide examples of each type and discuss their respective purposes and characteristics. (7 Marks)

OR

(i) Describe a cyber-attack targeting each layer of the OSI model. (7 Marks)

(ii) Differentiate between TCP/IP and OSI Model. (7 Marks)

Que 2 Write the following

(i) Define a router attack and its significance in network security. Discuss the primary objectives behind such attacks and their potential consequences. (7 Marks)

(ii) Define brute force attack and explain how it works in the context of cybersecurity. (7 Marks)

OR

(i) Describe in detail the process of a Distributed Denial of Service (DDoS) attack targeting a router. (7 Marks)

(ii) Discuss the limitations and challenges associated with defending against brute force attacks. (7 Marks)

Que 3 Write the following

(i) Define a man-in-the-middle attack and explain how it works in the context of network communication. (7 Marks)

(ii) Explain the primary functions of a router and a switch. Discuss how they differ and how they complement each other in a network infrastructure. (7 Marks)

OR

(i) Define Access Control List (ACL) and explain its purpose in network security. (7 Marks)

(ii) Explain the concept of DNS poisoning and its significance in network security. (7 Marks)

Que 4 Write the following

(i) Outline the steps involved in setting up and configuring a VPN for secure remote access. (7 Marks)

(ii) Discuss the primary purpose of network sniffing tools and the types of data they can capture. Provide examples of popular network sniffing tools and their functionalities. (7 Marks)

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OR

(i) Explain the difference between passive and active network sniffing techniques. (7 Marks)

(ii) Explain the primary differences between a proxy server and a VPN (Virtual Private Network). Discuss their respective functionalities, advantages, and limitations. (7 Marks)

Que 5 **Attempt any** SEVEN **out of twelve** (14 Marks)

(i) Define DNS poisoning and briefly explain how it can be used in cyber-attacks.

(ii) What does DOS stand for?

(iii) Explain the difference between passive and active Man-in-the-Middle attacks.

(iv) Explain the difference between forward and reverse proxy servers.

(v) Name one advantage and one disadvantage of using a proxy server.

(vi) Name and describe two common types of router attacks, outlining their potential impact on network infrastructure.

(vii) Define a router attack.

(viii) Briefly explain the difference between a site-to-site VPN and a remote access VPN.

(ix) Binary search has a time complexity of _____.

(x) What is the primary function of a proxy server?

(xi) What is a VPN tunnel, and how does it contribute to the security of data transmission?

(xii) Define a Man-in-the-Middle attack in the context of computer security.