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BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(ANCS)-Hons-2022
Course Name – Firewall Technology
Course Code - BNCSD603B
(Semester VI)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify the main function of a firewall.
 - a) To allow all network traffic
 - b) To monitor network traffic
 - c) To filter and control incoming/outgoing network traffic
 - d) To connect networks
- (ii) Select the key benefit of using a firewall.
 - a) It improves network speed
 - b) It prevents unauthorized access
 - c) It ensures high availability
 - d) It routes traffic efficiently
- (iii) Identify what DHCP stands for:
 - a) Dynamic Host Configuration Protocol
 - b) Domain Host Configuration Protocol
 - c) Data Host Configuration Protocol
 - d) Device Host Configuration Protocol
- (iv) Determine which statement is true about a stateful inspection firewall.
 - a) It checks the state of active connections
 - b) It blocks all incoming traffic
 - c) It requires manual configuration
 - d) It only works with certain protocols
- (v) Identify the method a firewall typically uses to block or allow traffic.
 - a) Network address translation
 - b) Stateful inspection
 - c) Access control lists (ACLs)
 - d) Network topology analysis
- (vi) Identify the appropriate network location where a firewall is typically placed to regulate traffic flow and enhance security.
 - a) Between the router and the internet
 - b) Between the router and the server
 - c) Between the client and the network switch
 - d) Between the client and the DNS server
- (vii) Determine the method to access firewall configuration pages.
 - a) Via command line
 - b) Via Firewall Web Interface
 - c) By editing the configuration file directly
 - d) Through the system settings menu
- (viii) Identify the necessary requirement to configure firewall settings on a Linux system.
 - a) Installing firewall software
 - b) Editing the firewall configuration file
 - c) Enabling the firewall service
 - d) all of these

- (ix) Identify the option used to configure the administrator password in a Palo Alto firewall.
 - a) Device > Admin Settings
 - b) Device > Setup > Management
 - c) Admin > Setup
 - d) Network > Admin
- (x) Apply Palo Alto firewall administration to determine which feature allows administrators to create a redundant configuration for a firewall.
 - a) HA (High Availability)
 - b) Load Balancer
 - c) VPN
 - d) Traffic Monitoring
- (xi) Choose the key benefit of using a DNS Proxy.
 - a) Increases traffic
 - b) Logs and monitors DNS activity
 - c) Replaces DHCP
 - d) Improves security zones
- (xii) Modify the default trust level for an external zone.
 - a) High
 - b) Medium
 - c) Low
 - d) None
- (xiii) Explain the role of Routing Information Protocol (RIP) in networking.
 - a) Manages firewall rules
 - b) Implements distance-vector routing
 - c) Encrypts network traffic
 - d) Balances network loads
- (xiv) Modify an OSPF configuration to optimize route selection. Which factor is most important?
 - a) Cost
 - b) Hop Count
 - c) Firewall Rules
 - d) DNS Configuration
- (xv) Identify the protocol commonly used for multicast routing.
 - a) OSPF
 - b) RIP
 - c) PIM
 - d) BGP

Group-B

(Short Answer Type Questions)

$$3 \times 5 = 15$$

2. Describe the different types of firewalls and their functions. (3)
3. Explain the difference between a firewall and a router. (3)
4. Apply the concept of zones in firewall configuration. (3)
5. Explain the purpose of locking transactions in firewall configuration. (3)
6. Evaluate the steps to upgrade PAN-OS software. (3)

OR

Evaluate the configuration of logging in PAN-OS. (3)

Group-C

(Long Answer Type Questions)

 $5 \times 6 = 30$

7. Define the concept of a firewall and its role in protecting a network. (5)
8. Define the concept of stateful inspection in firewalls. (5)
9. Create a framework on how a firewall enforces security policies within a network. (5)
10. Explain the relationship between firewalls and intrusion prevention systems (IPS). (5)
11. Assess the role of security profiles in firewalls. (5)
12. Explain how to set up security zones in a firewall configuration. (5)

OR

Compare the working of stateful and stateless firewalls. (5)
