

M.Sc. Sem.-3 Examination

501

D. S.

Time : 2-30 Hours]

November-2025

[Max. Marks : 70

Instructions: All questions are compulsory. Use of non-programmable scientific calculator is allowed.

- Q.1 (a) Define cyberspace. Explain the architecture of cyberspace with its components. (07)
 (b) Explain how a firewall protects a network with a suitable diagram. (07)
- OR**
- (a) Compare and contrast stateless and stateful firewalls. (07)
 (b) Explain the role and objectives of the Internet Society in cyberspace governance. (07)
- Q.2 (a) Describe the concept of Network Address Translation (NAT) and its role in cybersecurity. (07)
 (b) Compare and contrast stateless and stateful firewalls. (07)
- OR**
- (a) Discuss the working and configuration basics of Linux and Windows firewalls. (07)
 (b) Discuss the key differences between the internet and the World Wide Web. (07)
- Q.3 (a) Describe the evolution of internet and the infrastructure involved in internet data transfer. (07)
 (b) Describe the concept of Network Address Translation (NAT) and its role in cybersecurity. (07)
- OR**
- (a) What are the key features and functionalities of Snort as an Intrusion Detection System (IDS)? (07)
 (b) Explain how a firewall protects a network with a suitable diagram. (07)
- Q.4 (a) Describe various types of web attacks that target users and websites. (07)
 (b) Explain the difference between authentication and access control with examples. (07)
- OR**
- (a) Discuss different tools and techniques used in network vulnerability scanning. (07)
 (b) Explain the terms: threats, vulnerabilities, harm, and controls in computer security. (07)
- Q.5 Attempt any SEVEN out of TWELVE: (14)
- (1) What is meant by vulnerability in system security?
 - (2) Compare and contrast stateless and stateful firewalls.
 - (3) Write any two differences between internet and web.
 - (4) Name two email-based cyber-attacks.
 - (5) Define the term "Internet Infrastructure".
 - (6) Describe the concept of Network Address Translation (NAT) and its role in cybersecurity.
 - (7) What is the function of Netcat in scanning?
 - (8) What do you understand by "communication and web technology"?
 - (9) Explain how a firewall protects a network with a suitable diagram.
 - (10) Define banner/version check in vulnerability scanning.
 - (11) What is cyberspace?
 - (12) Discuss the working and configuration basics of Linux and Windows firewalls.
