NETWORK SECURITY

PART I   SECURITY CHALLENGES TO COMPUTER NETWORKS

1. **SECURITY THREATS TO COMPUTER NETWORKS**
   Sources of Security Threats, Security Threat Motives, Security Threat Management, Security Threat Correlation, Security Threat Awareness
2. **COMPUTER NETWORK VULNERABILITIES**
   Sources of vulnerabilities, Vulnerability Assessment
3. **HOSTILE SCRIPTS**
   Introduction to the Common Gateway Interface (CGI), CGI Scripts in a Three – Way Handshake, Server – CGI Interface, CGI Script Security Issues, Web Script Security Issues, Dealing with the Script Security Problems, Scripting languages: server side, client side scripting languages

PART II   DEALING WITH NETWORK SECURITY CHALLENGES

4. **ACCESS CONTROL AND AUTHORIZATION**
   Access Rights, Access Control Systems, Authorization, Types of Authorization Systems, Authorization Principles, Authorization Granularity, Web Access and Authorization
5. **AUTHENTICATION**
   Authentication Elements, Types of Authentication, Authentication Methods, Developing an Authentication Policy
6. **FIREWALLS**
   Types of Firewalls, Configuration and Implementation of a Firewall, Demilitarized Zone (DMZ), Firewall Services and Limitations
7. **SYSTEM INTRUSION DETECTION AND PREVENTION**
   Intrusion Detection, Intrusion Detection Systems, Types of Intrusion Detection Systems, Challenges to Intrusion Detection Systems, Intrusion Prevention Systems

PART III   WIRELESS NETWORKS

8. **SECURITY IN WIRELESS NETWORKS AND DEVICES**
   Cellular wireless Communication Network Infrastructure, Wireles LAN (WLAN) or Wireless Fidelity (Wi-Fi), Standards for wireless Networks, Security in Wireless Networks

PART IV   PROTOCOLS AND STANDARDS

9. **NETWORK SECURITY PROTOCOLS AND STANDARDS**
   Application Level Security: PGP, S/MIME, Secure HTTP, HTTPS, Secure Electronic Transactions (SET), Kerboros; Security in the Transport Layer: Secure Socket Layer (SSL), Transport Layer Security (TLS); Security in the Network Layer: Internet Protocol Security (IPSec), Virtual Private Networks (VPNs), Security in the Link Layer and over LANS: Point-to-Point Protocol (PPP), Remote Authentication Dial-In Service (RADIUS), Terminal Access Controller Access Control System (TACACS+)