1.0 Network Fundamentals

1.1 Explain the role and function of network components

1.2 Describe characteristics of network topology architectures

1.3 Compare physical interface and cabling types

1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)

1.5 Compare TCP to UDP

1.6 Configure and verify IPv4 addressing and subnetting

1.7 Describe the need for private IPv4 addressing

1.8 Configure and verify IPv6 addressing and prefix

1.10 Verify IP parameters for Client OS (Windows, Mac OS, Linux)

1.11 Describe wireless principles

1.12 Explain virtualization fundamentals (virtual machines)

1.13 Describe switching concepts

2.0 Network Access

2.1 Configure and verify VLANs (normal range) spanning multiple switches

2.2 Configure and verify interswitch connectivity

2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)

2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)

2.5 Describe the need for and basic operations of Rapid PVST+ Spanning Tree Protocol and identify basic operations

2.6 Describe physical infrastructure connections of WLAN components (AP, WLC, access/trunk ports, and LAG)

3.0 IP Connectivity

3.1 Interpret the components of routing table

3.2 Determine how a router makes a forwarding decision by default

3.3 Configure and verify IPv4 and IPv6 static routing

3.4 Configure and verify single area OSPFv2

3.5 Describe the purpose of first hop redundancy protocol

4.0 IP Services

4.1 Configure and verify inside source NAT using static and pools

4.2 Configure and verify NTP operating in a client and server mode

4.3 Explain the role of DHCP and DNS within the network

4.4 Explain the function of SNMP in network operations

4.5 Describe the use of syslog features including facilities and levels

4.6 Configure and verify DHCP client and relay

5.0 Security Fundamentals

5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)

5.2 Describe security program elements (user awareness, training, and physical access control)

5.3 Configure device access control using local passwords

6.0 Automation and Programmability

6.1 Explain how automation impacts network management

6.2 Compare traditional networks with controller-based networking

6.3 Describe controller-based and software defined architectures (overlay, underlay, and fabric)