Troubleshooting and Maintaining Cisco IP Networks v2 (300-135)

Exam Description: Troubleshooting and Maintaining Cisco IP Networks v2 (TSHOOT 300-135) is a 120minute qualifying exam with 15–25 questions for the Cisco CCNP certification. The TSHOOT 300135 exam certifies that the successful candidate has the knowledge and skills necessary to:

- Plan and perform regular maintenance on complex enterprise routed and switched networks
- Use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting

The following topics are general guidelines for the content that is likely to be included on the exam. However, other related topics may also appear on any specific version of the exam. To better reflect the contents of the exam and for clarity, the following guidelines may change at any time without notice.

5% **1.0** **Network Principles**

1.1 Use Cisco IOS troubleshooting tools

1.1.a Debug, conditional debug

1.1.b Ping and trace route with extended options

1.2 Apply troubleshooting methodologies

1.2.a Diagnose the root cause of networking issues (analyse symptoms, identify and describe root cause)

1.2.b Design and implement valid solutions

1.2.c Verify and monitor resolution

40% **2.0** **Layer 2 Technologies**

2.1 Troubleshoot switch administration

2.1.a SDM templates

2.1.b Managing MAC address table

2.1.c Troubleshoot Err-disable recovery

2.2 Troubleshoot Layer 2 protocols

2.2.a CDP, LLDP

2.2.b UDLD

2.3 Troubleshoot VLANs

2.3.a Access ports

2.3.b VLAN database

2.3.c Normal, extended VLAN, voice VLAN

2.4 Troubleshoot trunking

2.4.a VTPv1, VTPv2, VTPv3, VTP pruning

2.4.b dot1Q

2.4.c Native VLAN

2.4.d Manual pruning

2.5 Troubleshoot Ether Channels

2.5.a LACP, PAgP, manual

2.5.b Layer 2, Layer 3

2.5.c Load balancing

2.5.d EtherChannel misconfiguration guard

2.6 Troubleshoot spanning tree

2.6.a PVST+, RPVST+, MST

2.6.b Switch priority, port priority, path cost, STP timers

2.6.c PortFast, BPDUguard, BPDUfilter

2.6.d Loopguard, Rootguard

2.7 Troubleshoot other LAN switching technologies

2.7.a SPAN, RSPAN

2.8 Troubleshoot chassis virtualization and aggregation technologies

2.8.a Stackwise

40% 3.0 Layer 3 Technologies

3.1 Troubleshoot IPv4 addressing and subnetting

3.1.a Address types (Unicast, broadcast, multicast, and VLSM)

3.1.b ARP

3.1.c DHCP relay and server

3.1.d DHCP protocol operations

3.2 Troubleshoot IPv6 addressing and subnetting

3.2.a Unicast

3.2.b EUI-64

3.2.c ND, RS/RA

3.2.d Autoconfig (SLAAC)

3.2.e DHCP relay and server

3.2.f DHCP protocol operations

3.3 Troubleshoot static routing

3.4 Troubleshoot default routing

3.5 Troubleshoot administrative distance

3.6 Troubleshoot passive interfaces

3.7 Troubleshoot VRF lite

3.8 Troubleshoot filtering with any protocol

3.9 Troubleshoot between any routing protocols or routing sources

3.10 Troubleshoot manual and auto summarization with any routing protocol

3.11 Troubleshoot policy-based routing

3.12 Troubleshoot suboptimal routing

3.13 Troubleshoot loop prevention mechanisms
- 3.13.a Route tagging, filtering
- 3.13.b Split-horizon
- 3.13.c Route poisoning

3.14 Troubleshoot RIPv2

3.15 Troubleshoot EIGRP neighbour relationship and authentication

3.16 Troubleshoot loop free path selection
- 3.16.a RD, FD, FC, successor, feasible successor

3.17 Troubleshoot EIGPR operations
- 3.17.a Stuck in active

3.18 Troubleshoot EIGRP stubs

3.19 Troubleshoot EIGRP load balancing
- 3.19.a Equal cost
- 3.19.b Unequal cost

3.20 Troubleshoot EIGRP metrics

3.21 Troubleshoot EIGRP for IPv6

3.22 Troubleshoot OSPF neighbour relationship and authentication

3.23 Troubleshoot network types, area types, and router types
- 3.23.a Point-to-point, multipoint, broadcast, nonbroadcast
- 3.23.b LSA types, area type: backbone, normal, transit, stub, NSSA, totally stub

3.23.c Internal router, backbone router, ABR, ASBR
3.23.d Virtual link

3.24 Troubleshoot OSPF path preference

3.25 Troubleshoot OSPF operations

3.26 Troubleshoot OSPF for IPv6

3.27 Troubleshoot BGP peer relationships and authentication
3.27.a Peer group
3.27.b Active, passive
3.27.c States and timers

3.28 Troubleshoot eBGP
3.28.a eBGP
3.28.b 4-byte AS number
3.28.c Private AS

5% **4.0 VPN Technologies**

4.1 Troubleshoot GRE

5.0 Infrastructure Security

5.1 Troubleshoot IOS AAA using local database
5.2 Troubleshoot device access control
5.2.a Lines (VTY, AUX, console)
5.2.b Management plane protection
5.2.c Password encryption
5.3 Troubleshoot router security features
5.3. IPv4 access control lists (standard, extended, time-based)
5.3.b IPv6 traffic filter
5.3.c Unicast reverse path forwarding

5% 6.0 Infrastructure Services

6.1 Troubleshoot device management
6.1.a Console and VTY
6.1.b Telnet, HTTP, HTTPS, SSH, SCP
6.1.c (T)FTP
6.2 Troubleshoot SNMP
6.2.a v2
6.2.b v3
6.3 Troubleshoot logging

6.3.a Local logging, syslog, debugs, conditional debugs

6.3.b Timestamps

6.4 Troubleshoot Network Time Protocol (NTP)

6.4.a NTP master, client, version 3, version 4

6.4.b NTP authentication

6.5 Troubleshoot IPv4 and IPv6 DHCP

6.5.a DHCP client, IOS DHCP server, DHCP relay

6.5.b DHCP options (describe)

6.6 Troubleshoot IPv4 Network Address Translation (NAT)

6.6.a Static NAT, Dynamic NAT, PAT

6.7 Troubleshoot SLA architecture

6.8 Troubleshoot tracking objects

6.8.a Tracking objects

6.8.b Tracking different entities (for example, interfaces, IPSLA results)