

**CCNA Routing & Switching 2017 for the new 200-125 composite exam  
that is replacing the 200-120**

**IP Data Networks**

- 1) *Understand the operation of data networks.*
- 2) *Know the purpose and functions of network devices such as routers, switches, bridges and hubs.*
- 3) *Be able to select components to meet a specific network requirement.*
- 4) *Understand how certain applications can impact network performance.*
- 5) *Know the protocols, purpose and operation of both the OSI and TCP/IP models.*
- 6) *Describe the data flow between two hosts on a network*
- 7) *Be able to choose the most appropriate cables, media, ports and connectors to connect network devices and hosts to a LAN.*

**LAN Switching**

- 1) *Understand the media access control method for Ethernet.*
- 2) *Describe the basic switching concepts and the operation of switches*
- 3) *Configure and verify switch configuration including remote access*
- 4) *Verify a network and switch operation using basic utilities such as ping, telnet and SSH.*
- 5) *Describe VLANs and the need for routing between VLANs.*
- 6) *Understand network segmentation and traffic management.*
- 7) *Be able to configure and verify VLANs.*
- 8) *Configure and verify trunking on Cisco switches.*
- 9) *VTP server and client modes*
- 10) *Ether Channel*

### **IP Addressing (IPv4 and IPv6)**

- 1) Describe the need for public and private addresses for IPv4.
- 2) Understand IPv6 addresses.
- 3) Describe the appropriate IPv4 addressing scheme for a LAN/WAN environment, including VLSM and summarization.
- 4) Describe the technologies required to run IPv6 and IPv4 concurrently

### **IP Routing**

- 1) Understand the basic routing concepts.
- 2) Understand the boot process of a Cisco router.
- 3) Configure and verify a basic router configuration using the command line interface.
- 4) Configure and verify both serial and Ethernet interfaces.
- 5) Be able to verify the network connectivity and configuration of a router.
- 6) Configure a static or default route given specific requirements, then verify.
- 7) Understand and distinguish different methods of routing and routing protocols.
- 8) Configure and verify EIGRP in a single autonomous system.
- 9) Configure and verify OSPF (v2 and v3) in a single area.
- 10) Configure and verify inter-VLAN routing using router-on-a-stick.

### **IP Services**

- 1) Configure and verify DHCP on a Cisco router.
- 2) Understand the features and applications of each type of ACL.
- 3) Be able to configure and verify ACLs.
- 4) Understand the basic operation of NAT.
- 5) Configure and verify NAT based on a set of network requirements.
- 6) Recognize high availability FHRP.

### **Troubleshooting**

- 1) *Troubleshoot and correct common issues concerning IP addressing and host configurations.*
- 2) *Manage Cisco IOS Configuration files backup and restore*
- 3) *Troubleshoot and fix spanning tree operation.*
- 4) *Troubleshoot and resolve routing issues, including OSPF, and EIGRP.*
- 5) *Troubleshoot and correct VLAN problems.*
- 6) *Troubleshoot and resolve switch trunking issues.*
- 7) *Troubleshoot and fix ACL problems.*
- 8) *Troubleshoot and correct WAN issues.*
- 9) *Troubleshoot EtherChannel issues.*
- 10) *Understand, configure and verify Syslog and utilize Syslog output.*

### **WAN Technologies**

- 1) *VPN Tunnel configuration*
- 2) *Configure and verify a serial WAN connection*
- 3) *Be able to configure and verify a PPP (PAP) connection between two Cisco routers.*
- 4) *Be able to configure and verify a PPP (CHAP) connection between two Cisco routers.*
- 5) *Configure and troubleshoot PPPoE.*