

## **A+ and CISCO**

### **IT Essentials Hardware Objectives**

Identify basic terms, concepts, and functions of system modules, including how each module should work during normal operation and during the boot process.

Identify basic procedures for adding and removing field replaceable modules.

Identify proper procedures for installing and configuring IDE/EIDE/ SCSI devices.

Identify proper procedures for installing and configuring peripheral devices.

Identify hardware methods of upgrading system performance, procedures for replacing basic subsystem components, unique components and when to use them.

### **Diagnosing and Troubleshooting**

Identify common symptoms and problems associated with each module and how to troubleshoot and isolate the problems.

### **Preventive Maintenance**

Identify issues, procedures and devices for protection within the computing environment, including people, hardware, and the surrounding workplace.

### **Motherboard/Processors/Memory**

Explain CPU chips in terms of their basic characteristics.

Identify the categories of RAM (Random Access Memory) terminology

Identify the purpose of CMOS (Complementary Metal-Oxide Semiconductor), what it contains and how to change its basic parameters.

### **Printers**

Identify basic concepts, printer operations and printer components.

### **Basic Networking**

Identify basic networking concepts, including how a network works and the ramifications of repairs on the network

### **Operating System Technologies**

Identify the operating system's functions, structure, and major system files to navigate the operating system and how to get needed technical information ( Windows NT)

Identify basic concepts and procedures for creating, viewing and managing files, directories and disks

Setup Windows OS for networking.

### **Installation, Configuration and Upgrading**

Identify the procedures for installing and/or upgrading and configuring Windows XP.

Identify the basic system boot sequences and boot methods, including the steps to create an emergency boot disk with utilities installed for Windows XP

### **Diagnosing and Troubleshooting**

Recognize and interpret the meaning of common error codes and messages from the boot sequence, and identify steps to correct the problem

Recognize common problems and determine how to resolve them.

## **CISCO CCNA**

### **Networking**

Explain common networking concepts and terminology.

Install and troubleshoot basic hardware and software required to communicate in a simple network and test for connectivity.

Describe major network media and media testing techniques.

Optimize network design in regard to segmentation, collision and broadcast domains.  
Describe the concepts associated with switching in a LAN environment.  
Explain the OSI model and its functionality in computer networking.  
Identify at least 3 reasons why the industry uses a layered model.  
Define and explain the 5 conversion steps of data encapsulation.  
Define flow control and describe the three basic methods used in networking.  
List the key internetworking functions of the OSI and TCP models.  
Explain the basic components of a LAN and WAN.  
Define and explain a SOHO network.  
Define and explain a wireless network.  
Define and explain LAN design.  
Explain the ISP services provided to customers.  
Calculate network addressing using Ipv4 and classful subnetting.  
Calculate network addressing using Ipv4 and classless subnetting.  
Explain IPv6 addressing.

### **Switching**

Install, configure and troubleshoot Cisco switches.  
Perform, verify and troubleshoot initial switch configuration tasks.  
Perform remote access management of a Cisco switch.  
Explain the concepts of switching and the benefits of using switches in a network. (frame forwarding, VLAN, STP, VTP, Trunking, inter-vlan routing)  
Compare and contrast hubs and switches and their effects on:  
    1) Broadcast domains.  
    2) Collision domains.  
Verify the operational status of a Cisco switched network.  
Explain the concept of VLANs in a Cisco network.  
Create VLANs and assign ports to VLANs to meet given user requirements.  
Configure and test routing between VLANs.  
Troubleshoot Switching problems in a Cisco switched network.  
Evaluate and recommend Layer 2 security measures.  
Explain and configure Spanning-Tree Protocol (STP) on a Cisco Switch.  
Explain how STP prevents switching loops on a LAN.  
Explain the process of selecting a root bridge and root port on a Cisco Switch.  
Explain the concept of Rapid Spanning-Tree Protocol.  
Configure Rapid STP on a Cisco switch.  
Verify the operation of STP and modify the STP parameters for a given requirement.  
Configure switches for an Enterprise network.

### **Routers**

Log into a router in both user and privileged modes using the IOS command interface  
Manage Cisco router IOS and configuration files.  
Perform, save and test an initial configuration on a router.  
Identify the major internal and external components of a router and describe their associated functionality.  
Identify the stages of the router boot-up sequence and show how the configuration register and system commands modify the sequence.  
Connect the router FastEthernet, Serial WAN, and console ports to devices and interconnect routers, hubs switches using serial and Ethernet interfaces.  
Create, configure, and verify the different classes of IP addresses [and subnetting].  
Evaluate, configure and troubleshoot routing protocols, static routes and default routes.  
Analyze, configure, implement and verify Access Control Lists (ACL).  
Plan an IP addressing scheme using VLSM on a Cisco Router.  
Configure, troubleshoot, verify, and explain the operation of routing protocols:  
    1) RIP  
    2) RIPv2

- 4)EIGRP
- 5)OSPF

Evaluate the need for DHCP in LANs and identify the steps to configure on a Router.  
Analyze the various issues presented when using routing protocols over specific WAN technologies.

**Complete Portfolio**  
**Complete Mock Job Interview**

**PERSONAL QUALITIES**

Work Effort  
Safety Habits  
Work Area Organization  
On Task Behavior  
Responsibility  
Initiative  
Team Work  
Respect  
Interpersonal Skills