

CertBlaster®

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A+ 220-901		Yellow highlight shows all or partially new content.		Comments
1.0 Hardware				
	1.1	Given a scenario, configure settings and use BIOS/UEFI tools on a PC.		UEFI is new
			o BIOS security (passwords, drive encryption: TPM, secure boot)	Secure boot is new
			o Mini-ITX	
		Front/Top panel connectors		"top" is new
	1.3	Compare and contrast various RAM types and their features.		
		Types		
			o Buffered vs. unbuffered	
	1.4	Install and configure PC expansion cards.		
		Thunderbolt cards		
	1.5	Install and configure storage devices and use appropriate media.		
		Solid state/flash drives		
			o Hybrid	
			o eMMC	
	1.6	Install various types of CPUs and apply the appropriate cooling methods.		
		Socket types		
			o Intel: 775, 1155, 1156, 1366, 1150, 2011	Socket 1150 new
			o AMD: AM3, AM3+, FM1, FM2, FM2+	
		Characteristics		
			o Disable execute bit	BIOS settings
		Cooling		
			o Fanless/passive	
	1.7	Compare and contrast various PC connection interfaces, their characteristics and purpose.		
		Physical connections		
			o Other connector types	
			Audio	
			Analog	
			Digital (Optical connector)	
			Thunderbolt	
		Wireless connections		
			o NFC	
		Characteristics		
			o Analog	

- o Digital
- o Distance limitations
- o Data transfer speeds
- o Quality
- o DRM
- o Frequencies

1.8 Install a power supply based on given specifications.

▢ Specifications

- o Dual rail

1.9 Given a scenario, select the appropriate components for a custom PC configuration, to meet customer specifications or needs.

▢ Graphic / CAD / CAM design workstation

- o Multicore processor

▢ Gaming PC

- o Multicore processor
- o High definition sound card

▢ Standard thick client

- o Meets recommended requirements for selected OS

▢ Thin client

- o Meets minimum requirements for selected OS
- o Network connectivity

1.10 Compare and contrast types of display devices and their features.

▢ Types

- o LCD
 - ▢ TN vs. IPS
 - ▢ Flourescent vs. LED backlighting

▢ Refresh / frame rates

▢ Aspect ratios

- o 16:9
- o 16:10
- o 4:3

1.11 Identify common PC connector types and associated cables.

▢ Display connector types

- o HD15 (i.e. DE15 or DB15)

▢ Adapters and convertors

- o DVI to HDMI
- o USB A to USB B
- o USB to Ethernet
- o DVI to VGA
- o Thunderbolt to DVI
- o PS/2 to USB
- o HDMI to VGA

1.12 Install and configure common peripheral devices.

▢ Input devices

- o Motion sensor
- o Touch pads
- o Smart card readers

	<ul style="list-style-type: none"> Input & Output devices 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Smart TV 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Set-Top Box 		
	1.13 Install SOHO multifunction device / printers and configure appropriate settings.		
	<ul style="list-style-type: none"> Use appropriate drivers for a given operating system 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Configuration settings 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Duplex 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Collate 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Orientation 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Quality 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Wireless 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> 802.11(a,b,g,n,ac) 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Infrastructure vs. adhoc 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Integrated print server (hardware) 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Cloud printing/remote printing 		
	<ul style="list-style-type: none"> Public/shared devices 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Sharing local/networked device via Operating System settings 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> TCP/Bonjour/AirPrint 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Data privacy 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> User authentication on the device 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Hard drive caching 		
	1.14 Compare and contrast differences between the various print technologies and the associated imaging process.		
	<ul style="list-style-type: none"> Virtual 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Print to file 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Print to PDF 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Print to XPS 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Print to image 		
	1.15 Given a scenario, perform appropriate printer maintenance.		
	<ul style="list-style-type: none"> Inkjet 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Clean heads, replace cartridges, calibration, clear jams 		
	2.0 Networking		
	2.2 Compare and contrast the characteristics of connectors and cabling.		
	<ul style="list-style-type: none"> Twisted pair 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Types: STP, UTP, CAT3, CAT5, CAT5e, CAT6, CAT6e, CAT7, plenum, PVC 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Splitters and effects on signal quality 		
	<ul style="list-style-type: none"> Coaxial 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Splitters and effects on signal quality 		
	2.3 Explain the properties and characteristics of TCP/IP.		
	<ul style="list-style-type: none"> Subnet mask vs. CIDR 		
	2.4 Explain common TCP and UDP ports, protocols, and their purpose.		
	<ul style="list-style-type: none"> Ports 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 22 – SSH 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 137-139, 445 - SMB 		
	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 548 or 427 - AFP 		
	<ul style="list-style-type: none"> Protocols 		

		o CIFS		
		o AFP		
2.5 Compare and contrast various WiFi networking standards and encryption types.				
	☐ Standards			
		o 802.11 a/b/g/n/ac		ac is new
2.6 Given a scenario, install and configure SOHO wireless/wired router and apply appropriate settings.				
	☐ NAT / DNAT			
	☐ Firmware			
	☐ UPnP			
2.7 Compare and contrast Internet connection types, network types, and their features.				
	☐ Internet Connection Types			
		o Cellular		
		☐ Tethering		
2.8 Compare and contrast network architecture devices, their functions, and features.				
	☐ Patch panel			
	☐ Repeaters/extenders			
	☐ Ethernet over Power			
	☐ Power over Ethernet injector			
2.9 Given a scenario, use appropriate networking tools.				
	☐ Cable stripper			
	☐ WiFi analyzer			
3.0 Mobile Devices				
3.1 Install and configure laptop hardware and components.				
	☐ Expansion options			
		o Ports/Adapters		
		☐ Thunderbolt		
		☐ DisplayPort		
		☐ USB to RJ-45 dongle		
		☐ USB to WiFi dongle		
		☐ USB to Bluetooth		
		☐ USB Optical Drive		
	☐ Hardware/device replacement			
		o Hard Drive		
		☐ SSD vs. Hybrid vs. Magnetic disk		
		☐ 1.8in vs. 2.5in		
		o Smart card reader		
		o Plastics/frames		
3.2 Explain the function of components within the display of a laptop.				
	☐ Types			
		o LCD		
		☐ TTL vs. IPS		
		☐ Fluorescent vs. LED backlighting		
	☐ Webcam			
	☐ Microphone			
	☐ Digitizer			

3.3 Given a scenario, use appropriate laptop features.

☐ Special function keys

- o Cellular (on/off)
- o Touch pad (on/off)
- o Screen orientation
- o Media options (fast forward/rewind)
- o GPS (on/off)
- o Airplane mode

☐ Rotating / removable screens

3.4 Explain the characteristics of various types of other mobile devices.

☐ Tablets

☐ Smart phones

☐ Wearable technology devices

- o Smart watches
- o Fitness monitors
- o Glasses and headsets

☐ Phablets

☐ e-Readers

☐ Smart camera

☐ GPS

3.5 Compare and contrast accessories & ports of other mobile devices.

☐ Connection types

- o NFC
- o Proprietary vendor specific ports (communication/power)
- o microUSB/miniUSB
- o Lightning
- o Bluetooth
- o IR
- o Hotspot / tethering

☐ Accessories

- o Headsets
- o Speakers
- o Game pads
- o Docking stations
- o Extra battery packs/battery chargers
- o Protective covers / water proofing
- o Credit card readers
- o Memory/MicroSD

4.0 Hardware and Network Troubleshooting

4.1 Given a scenario, troubleshoot common problems related to motherboards, RAM, CPU and power with appropriate tools

☐ Common symptoms

- o Proprietary crash screens (BSOD/pin wheel)
- o Distended capacitors

☐ Tools

- o POST card / USB

4.2 Given a scenario, troubleshoot hard drives and RAID arrays with appropriate tools.					
		☐ Common symptoms			
			o Proprietary crash screens (BSOD/pin wheel)		
			o S.M.A.R.T. errors		
		☐ Tools			
			o Bootrec		
			o Diskpart		
			o Defragmentation tool		
4.3 Given a scenario, troubleshoot common video, projector and display issues.					
		☐ Common symptoms			
			o Distorted geometry		
			o Burn-in		
			o Oversized images and icons		
4.4 Given a scenario, troubleshoot wired and wireless networks with appropriate tools.					
		☐ Common symptoms			
			o SSID not found		
		☐ Command line tools			
			o IPCONFIG/IFCONFIG		
			o NETDOM		
4.5 Given a scenario, troubleshoot and repair common mobile device issues while adhering to the appropriate procedures.					
		☐ Common symptoms			
			o Ghost cursor/pointer drift		
			o Touchscreen non-responsive		
			o Apps not loading		
			o Slow performance		
			o Unable to decrypt email		
4.6 Given a scenario, troubleshoot printers with appropriate tools.					
		☐ Common symptoms			
			o Printing blank pages		
			o No image on printer display		

