

## Computer Hardware Servicing NC II Assessment

Below is a reviewer on the skill assessment exam of those who wanted to get a certificate on Computer Hardware Servicing NC II from Technical Education and Skills Development Authority (TESDA, Philippines). It is assumed that you have the prior basic knowledge on computer hardware and software operations. This is not a comprehensive one but provides examples, hints and basic outline of the exam:

### 1. List of Tools and Materials/Inventory (written):

Name	Specification	Quantity	Remarks
<b>MATERIALS:</b>			
MEMORY	TWINMOS PC3200 256MB DDR	1	
PROCESSOR WD HEATSINK & FAN	AMD SEMPRON 2200 (1.5GHZ)	1	
MOTHERBOARD	ASUS A7S8X-MX	1	
HARDDISK	MAXTOR 40GB	1	
POWER SUPPLY	SUNSHINE ATX-754-3 350W	1	
CD-ROM	LG DVD WRITER	1	
MINI TOWER CASE	MINITOWER WHITR CASING	1	
CABLE	IDE CABLE	2	
MONITOR	FUJITSU VL150SS	1	
KEYBOARD	PS/2 CD-R KING	1	
MOUSE	PS/2 CRUISER, OPTICAL	1	
LAN CARD	SMC EN5030C	1	
VIDEO CARD	ATI RADEON R7000L-B3	1	
SCREW AND SPACER		8	
<b>TOOLS:</b>			
SCREW DRIVER		1	
LONG NOSE		1	
CRIMPING TOOL	KS MODERN	1	
RJ45		4	
UTP CABLE		10M	
LAN TESTER		1	
WINXP INSTALLER		1	
WIN98 INSTLR		1	
DRIVER CDS		2	
<b>WORK AREA:</b>			
TABLE	4'X4'	1	
<b>EQUIPMENT:</b>			
SERVER PC		1	
PRINTER	HP LASERJET1020	1	
SWITCH	TPLINK 16PORT	1	

### 2. Occupational Health and Safety Procedure (OHS) (written):

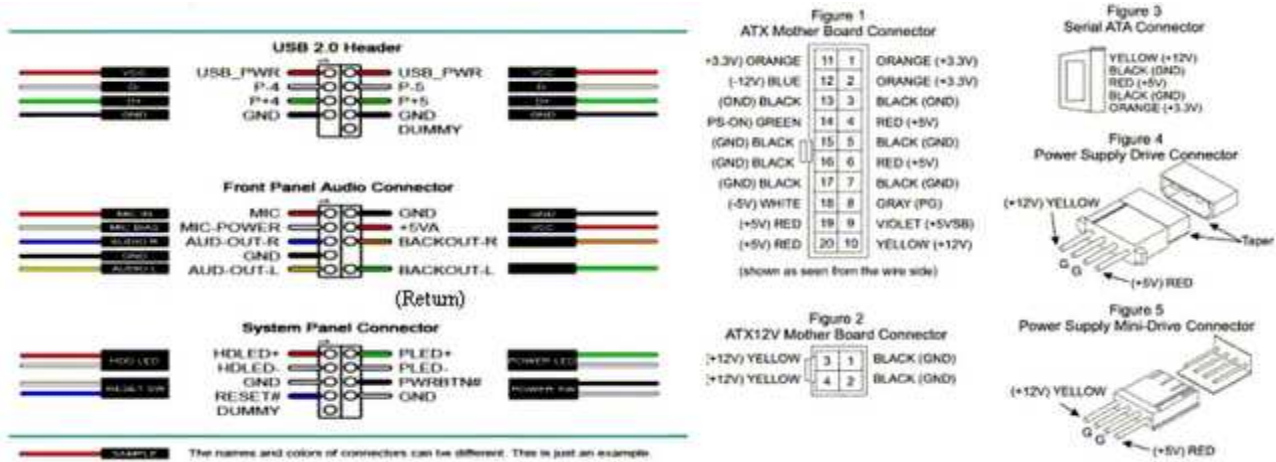
1. Contingency measures during workplace accidents, fire and other emergencies are recognized.
2. Personal protective equipment are correctly used in accordance with organization OHS procedures and practices.
3. Hazard/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment.
4. Take necessary precautions to protect the components of the computer from damage caused by ESD (Electrostatic Discharge).
5. Hold the components by the edges and do not touch the IC's.
6. Read and follow instructions on the manual carefully.
7. Do not use excessive force if things don't quite slip into place.

### 3. Assemble System Unit (manual)

#### PROPER ASSEMBLING PROCEDURE:

1. Prepare the computer case (install power supply, I/O shield and spacers).
2. Install the drives (DVD, floppy and HDD).
3. *Install the CPU, fan, heat sink and memory module on the motherboard.*

4. Install the motherboard into the casing and expansion cards.
5. Install the cablings (power connectors, FDD connector, IDE/SATA connector, USB headers and system panel header).
6. Attach the monitor, keyboard, mouse and plug into a power source.
7. Troubleshoot if necessary.
8. Assemble and install network connection.

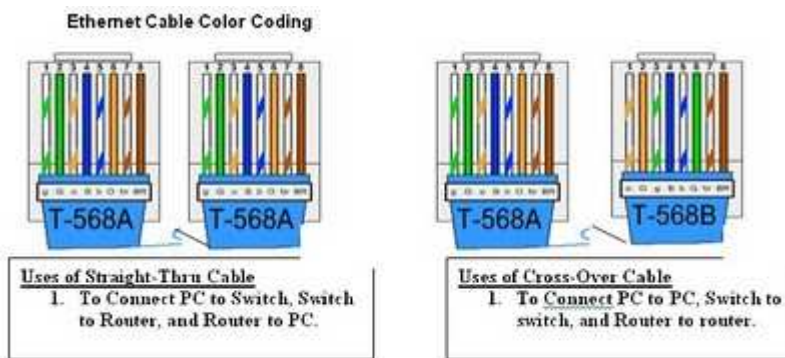


#### 4. Install Operating Systems (OS- XP/98, dual boot), Device Drivers, LAN Cable (manual).

Extensive procedures on dual/triple boot operating systems (OS) installation can be found on this

site <http://homepage.ntlworld.com/mosaddique/>. The type of operating systems to be installed might change overtime.

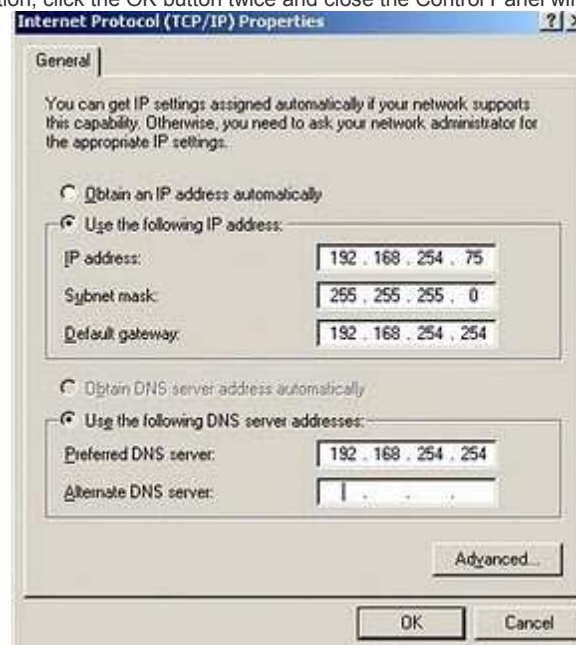
For LAN cable color coding, memorize the pairings below:



#### 5. Configure and Print (manual):

1. Click on the **Start** menu, then click on **Control Panel**
2. When the Control Panel window opens you will see items in either *Category View* (continue with step #3) or *Classic View* (skip to item #4)

3. Find and double-click on the **Network and Internet Connection** icon.
4. Next, find and double-click on the **Network Connections** icon, a window will open with all network connections available on the computer (wired and wireless)
5. Find the network connection you want to manually configure, right-click on it and select **Properties** from the pop-up menu
6. In the Connection Properties window, under the section labeled *This connection uses the following items:* find the **Internet Protocol (TCP/IP)** item and double-click it.
7. A new window will open, select the second radio button which is labeled *Use the following IP address*
8. Enter the appropriate IP address (192.168.0.1); subnet mask (usually 255.255.255.0); and gateway (the router or proxy server address)
9. The next part of the windows will now have a radio button selected which is labeled *Use the following DNS server addresses*
10. If you need to access the Internet, enter the DNS addresses provided by your ISP; if you do not have that information you can use the OpenDNS server. Their DNS addresses are: **208.67.222.222** and **208.67.220.220**
11. After entering the required information, click the OK button twice and close the Control Panel window.



### Changing Workgroup and Computer Name

- Start > Settings > Control Panel > System > Computer Name Tab > Change Tab
- >Type New Computer Name and Workgroup > OK..OK..OK..Restart

### Installing Network Printer

- Start > Settings > Control Panel > Printers and Faxes > Add Printer (Printers Tasks) > (Add Printer Wizard) Next > Select "A Network Printer, or ....." > Next > Browse Printer > Next > Select Installed Network Printer > Next > Yes..Finish!

*Note: Turn-off your firewall before installing network printer.*

### File/Folder Sharing

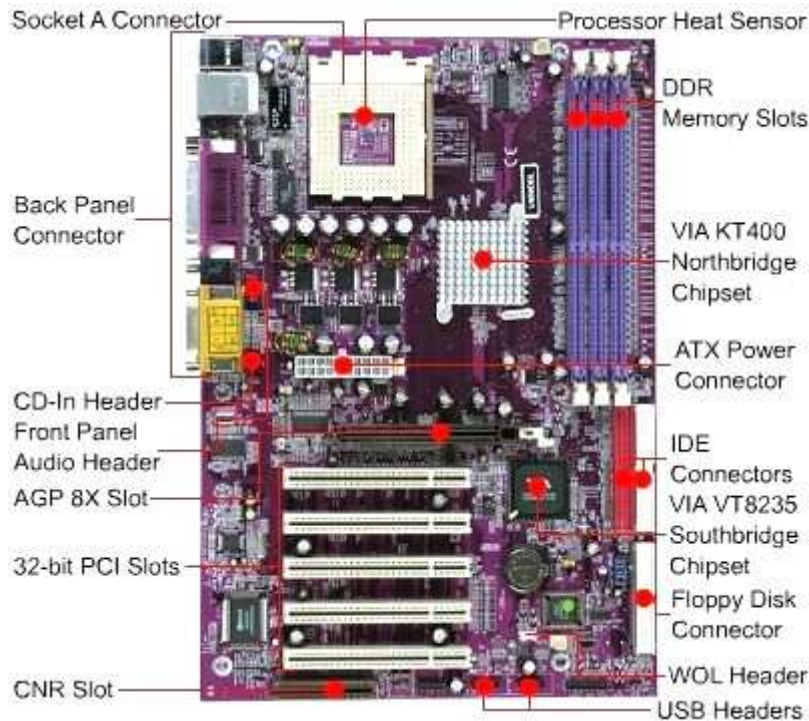
- Right-Click Folder to Share > Properties > Sharing Tab > Network Sharing and Security (Click "If you understand the security Risk...") > Just Enable Sharing > OK > Select Share this folder on the network > OK

## Sharing Printer

Start > Settings > Control Panel > Printers and Faxes > Right-click Installed Printer > Sharing > Share this Printer > OK

## 6. Questioning/Interview (oral):

Most of the questions will be on troubleshooting but anything around the subject matter can be asked. You also need to master the parts of the computer particularly of the Main Circuit Board or the Mother Board and their specific functions, cable color-coding as shown above.



**central processing unit (CPU)** - Interprets and carries out basic instructions that operate a computer

**Heat sink**—component with fins that cools processor

**random access memory (RAM)** - Memory chips that can be read from and written to by processor. Also called main memory or primary storage. Most RAM is volatile, it is lost when computer's power is turned off.

**read-only memory (ROM)** - Memory chips that store permanent data and instructions. Nonvolatile memory, it is not lost when computer's power is turned off.

**basic input and output system (BIOS)** - the first program to run when you turn on your computer. It is stored in a ROM chip on the motherboard.

**complementary metal-oxide semiconductor memory (CMOS)** - Stores date, time, and computer's startup information.

Maintained by a small battery after you turn the computer off.

**adapter card** - Enhances system unit or provides connections to external devices called peripherals. Also called an expansion card.

**expansion slot** - An opening, or socket, on the motherboard that can hold an adapter card

**Port** connects external devices to system unit

**Connector** joins cable to peripheral

(add additional notes)

Good luck! =)

Computer Hardware Servicing NC II Assesment Free Reviewer

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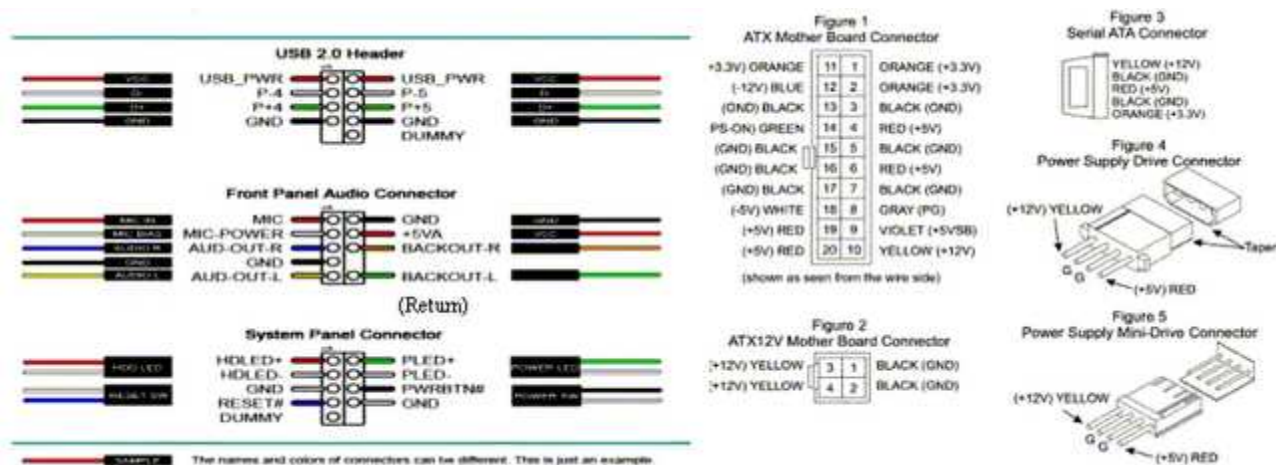
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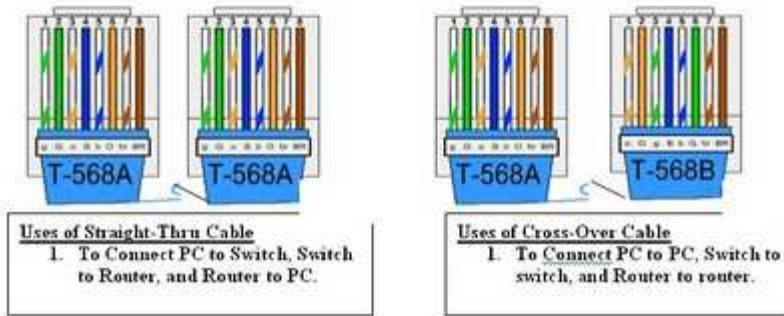


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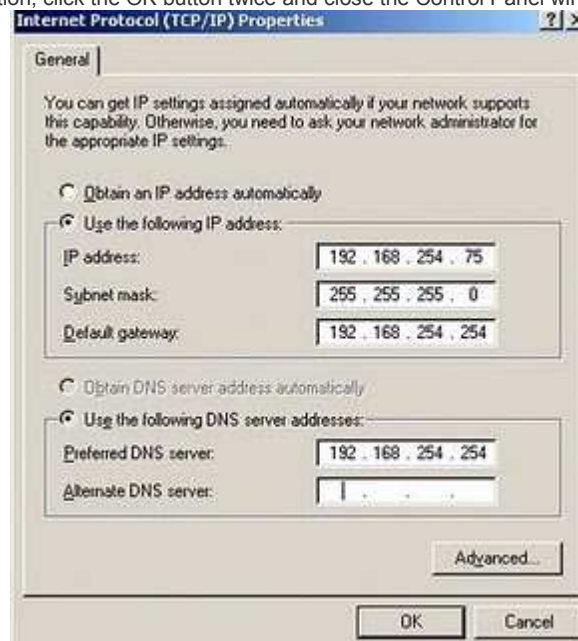
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### Ethernet Cable Color Coding



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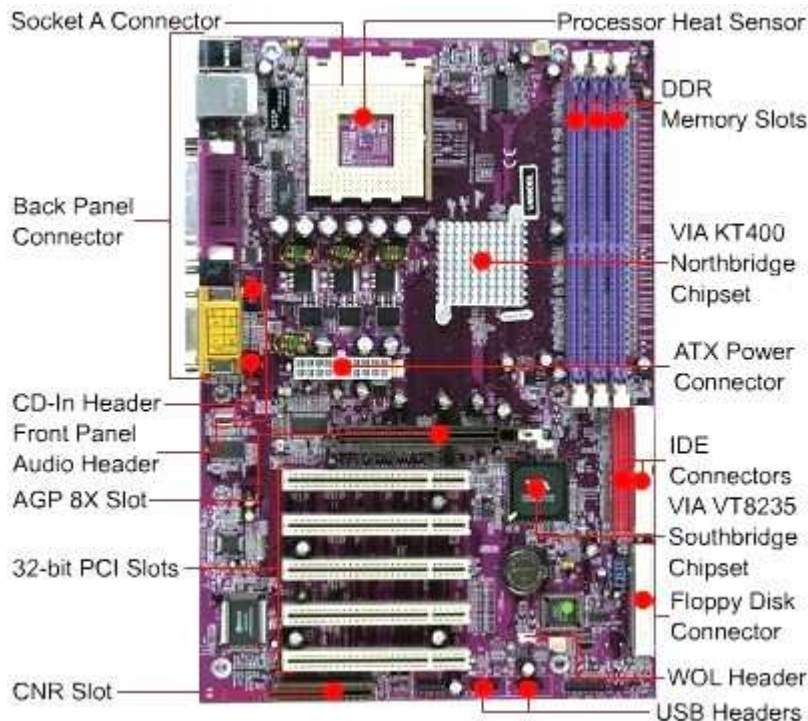
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## DEFINITION OF TERMS

- 1. Computer System** - The complete computer made up of the CPU, memory and related electronics (main cabinet), all the peripheral devices connected to it and its operating system. Computer systems fall into two broad divisions: clients and servers. Client machines fall into three categories from low to high end: laptop, desktop and workstation. Servers range from small to large: low-end servers, midrange servers and mainframes.
- 2. Configuration** - The makeup of a system. To "configure" is to choose options in order to create a custom system. "Configurability" is a system's ability to be changed or customized.
- 3. Connector** - Any plug and socket that links two devices together. Although taken for granted and rarely in the limelight, connectors are a huge industry, and the quality of these components is more critical than most people would imagine. When not designed or constructed properly, they often become the weakest element in an electronic system.
- 4. Display Adapter** - A plug-in card in a desktop computer that converts the images created in the computer to the electronic signals required by the monitor. It determines the maximum resolution, refresh rate and number of colors that can be displayed, which the monitor must also be able to support. On many PC motherboards, the display adapter circuits are built into the chipset, and an AGP or PCI card is not required.
- 5. Expansion Board** - A printed circuit board that plugs into an expansion slot and extends the computer's capability to control a peripheral device. All the boards (cards) that plug into a computer's bus are expansion boards, such as display adapters, disk controllers, network adapters and sound cards.
- 6. Expansion Bus** - An input/output bus typically comprised of a series of slots on the motherboard. Expansion boards (cards) are plugged into the bus. ISA and PCI are the common expansion buses in a PC.
- 7. Graphical User Interface** - A graphics-based user interface that incorporates movable windows, icons and a mouse. The ability to resize application windows and change style and size of fonts are the significant advantages of a GUI vs. a character-based interface. GUIs have become the standard way users interact with a computer, and the major GUIs are the Windows and Mac interfaces along with Motif for Unix and the GNOME and KDE interfaces for Linux.

8. **Motherboard** - Also called the "system board," it is the main printed circuit board in an electronic device, which contains sockets that accept additional boards. In a desktop computer, the motherboard contains the CPU, chipset, PCI bus slots, AGP slot, memory sockets and controller circuits for the keyboard, mouse, disks and printer. It may also have built-in controllers for modem, sound, display and network, obviating the need to plug in a card. A laptop motherboard typically has all peripheral controllers built in.
9. **Operating System** - The master control program that runs the computer. The first program loaded when the computer is turned on, its main part, the "kernel," resides in memory at all times. The operating system sets the standards for all application programs that run in the computer. The applications "talk to" the operating system for all user interface and file management operations. Also called an "executive" or "supervisor," an operating system performs the following functions.
10. **Peripheral** -Any hardware device connected to a computer, such as a monitor, keyboard, printer, disk, tape, graphics tablet, scanner, joy stick, paddle or mouse
11. **Server** - A computer system in a network that is shared by multiple users. Servers come in all sizes from x86-based PCs to IBM mainframes. A server may have a keyboard, monitor and mouse directly attached, or one keyboard, monitor and mouse may connect to any number of servers via a KVM switch. Servers may be also be accessed only through a network connection as well.
12. **Sound Card** - Also called a "sound board" or "audio adapter," it is a computer expansion board that records and plays back sound, providing inputs from a microphone or other sound source and outputs to speakers or an external amplifier. The de facto standard for sound card compatibility in PCs is Creative Labs' Sound Blaster.
13. **User Interface** - All graphics based today, the user interface includes the windows, menus and method of interaction between you and the computer. Prior to the Mac, Windows and Motif (Unix) interfaces, all interaction was based on commands entered by the user. Operating systems may support optional interfaces and allow a new shell, or skin, to be used instead.
14. **Virus** - Software used to infect a computer. After the virus code is written, it is buried within an existing program. Once that program is executed, the virus code is activated and attaches copies of itself to other programs in the system. Infected programs copy the virus to other programs.