Ramaiah Institute of Technology
(Autonomous Institute, Affiliated to VTU)
Department of CSE
Tutorial-1

Programme: B.E
Course: Computer Organization

Term: Jan to May 2018
Course Code: CS45

Name: MANAS.P.S	**Marks:** 10/10	**Date:** 21/1/2020
USN: 1MS18CS065	**Signature of the Faculty:**	

4/2/2020.

Activity I: Assembling and disassembling of a computer

Objective: To demonstrate the functional units of a system.

Assembling of a system: A PC computer is a modular type of computer, it can be assembled using hardware components made by different manufacturers, so as to have a custom built computer according to one's specific needs.

Disassembling of a system: When referring to hardware, **disassemble** is the process of breaking down a device into separate parts. A device may be disassembled to help determine a problem, to replace a part, or to take the parts and use them in another device or to sell them individually.

Activity to be performed by students: Identify the different parts of the system including its interconnection. Observe the assembly and disassembly procedure.

Answer the following questions.

1. Write down the detailed procedure to assemble a system.
2. Explain how troubleshooting a system helps to trace and correct the faults in a system
3. List out the procedure to install extra memory card to a system
4. With a diagram explain different cables used to connect function units in a system.
5. Discuss the safety precautions one should take while removing components of a system

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(1) Write down the detailed procedure to assemble a system.

The procedure is as follows:

* Remove side Panels on Case: The panels are removed from this case with thumb screws. The model's manual provides more insight into this, for mounting motherboard, thread into corresponding holes in the case.

* Insert motherboard: The I/O panel faceplate needs to be snapped into location in the back of case. After tightening the screws, install components into motherboard.

* Check clearances: Make sure there is enough space for each of the components to be installed.

* Front panel connections: Now attach the connections for buttons, lights, USB ports and audio connections. Refer to the manual. Do not use force.

* Install Power supply: The supply is modular and is screwed into the back panel by 4 screws, though some cases have a clamp.

* Power Motherboard: Run the motherboard cable first and connect it first.

* Installing optical drive: It is handy to have an optical device (DVD/CD) installed using the tool-less design of the case.

* Installing hard drives: A computer may use 4 drives, two in raid and rest ~~for~~ a main drive and miscellaneous storage. The direction of placement may differ, and using clips can help.

* Connect cables: The cables are keyed so they will only fit in one direction into the board.

* Install RAM, graphics card: Place in slots

closest to the CPU, making sure the notch is lined up. The manual should tell us if a 6-pin or 8-pin cable is needed for the graphics cards.

* Cable Management: Orienting the cables is an important task. Make sure the back-panel does not leave a large gap if you have several cables running over others.

② Explain how troubleshooting a system helps to trace and correct failure in a system.

Troubleshooting is the diagnosis of "trouble" in the management flow of a system caused by some failure. We first describe the symptoms of malfunction and troubleshooting is the process of remedying the causes of these symptoms

It is a process of elimination and usually requires confirmation that the solution restores the product to its working state. It demands critical thinking. A basic principle is to start from the simplest and most probable problems first. It helps to try starting from a known good state, like a computer reboot. Comprehensive documentation is also very helpful. Troubleshooting can also take the form of a systematic checklist, procedure or flowchart made before the problem occurs. We can first check for "frequently encountered" conditions first. One of the core principles of troubleshooting is that reproducible problems can be reliably isolated and resolved. When talking about replacement, one must focus on "adjustment or other modification" and not literally replace components.

③ List out the procedure to install extra memory card to a system.

Steps are :

- Determine the mode and amount of RAM your computer needs: We must know the exact specifications and configuration of compatible RAM needed.

- Disconnect cables : Unplug the AC power cord and disconnect all peripheral devices

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from your computer.

* Open the computer : Remove the cover by a screwdriver or yours fingers.

* Ground yourself : Before touching any electronic component, make sure you first touch an unpainted, grounded metal object to discharge static electricity

* Check the expansion sockets : locate existing memory and expansion sockets on the motherboard. You will need to remove the old card if no new sockets are available.

* Uninstall old RAM : Remove by pushing outward on white ejector tabs.

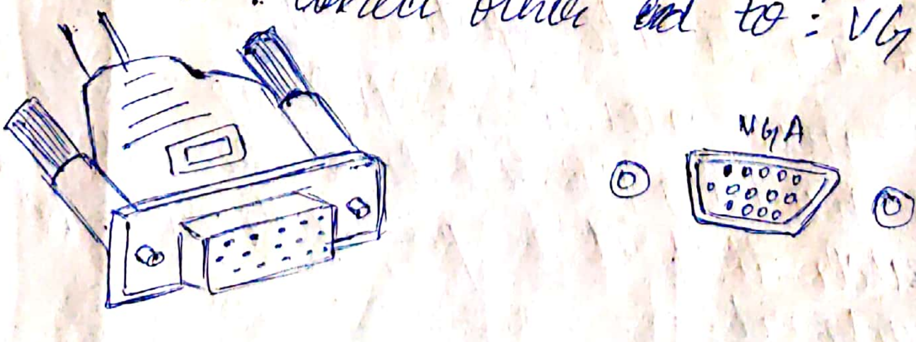
* Insert new memory : Pick up the card without touching pins or chips. Insert the stick such that it is perpendicular to the motherboard.

* Lock the memory stick : Make sure the small holes on each side fit into the holder. Gently try to pull the stick to ensure locking.
* Install all memories if removed.
* Test and check if the system has detected the new memory. Check the system properties and verify the new RAM size.
* Replace the cover properly.

(7) With a neat diagram, explain different cables used to connect functional units in a ~~cal~~ system.

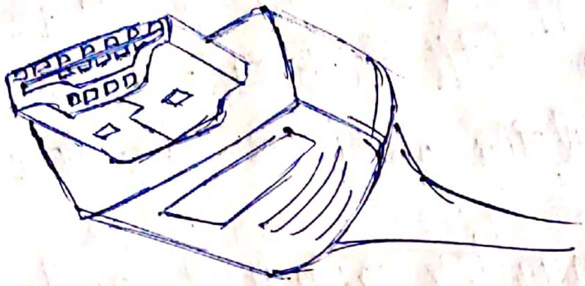
Different cables are :

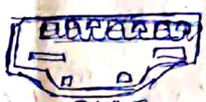
1. VGA cable :
Also known as D-sub cable, analog video cable. Connect one end to : computer-monitor, television. Connect other end to : VGA port.



2. HDMI cable

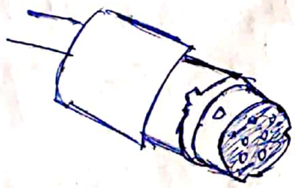
Used to transmit display & sound to TV. serves to make TV as an external monitor with sound speakers on TV.

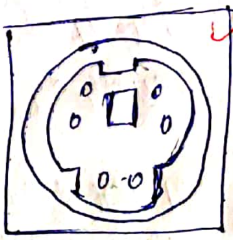




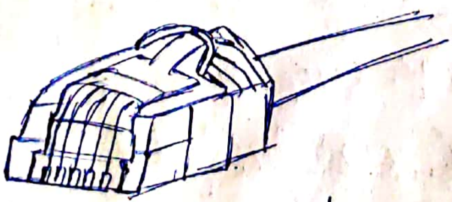
3. PS/2 cable

Purple PS/2 port : Keyboard
Green PS/2 port : Mouse

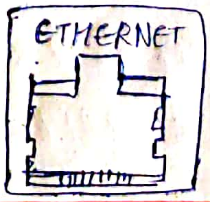




4. Ethernet (RJ45 cable)



One end to : router, network switch
other end to : Ethernet port on computer



5. Discuss the safety precautions one should take while removing components of a system.

Some safety precautions are :

- Wear proper apparel. Avoid acrylic or wool sweaters when working with electronic parts. Do not wear loose fitting clothing, rings, bracelets etc.

- Unplug all computer equipment and peripherals before opening any cases (only exception to this is if you were working without an anti-static mat - keeping cord in would provide a ground).

- Retain all screws during disassembly. Save and sort them in containers such as screw trays, or egg boxes.

- Do not forcefully remove components, as you may end up damaging the ports that attach these components.

- Power supplies produce several voltage levels. Read the supply information carefully before you disconnect and ensure it is appropriate for your system.

- Do not damage any case or cover during disassem-bly, as it may cause problems during refitting of the system and its components.