Computer Hardware – Answers (HNDIT, Semester I- 2017)

Q1

I. A computer receive X through an input device and it produces an output Y. Identify the X and Y and briefly explain the difference between them.

> X-Data/Instruction
> Y-Information

> Explanation:
- Data
  - Collection of meaningless numbers, characters
  - Raw fats
  - Meaning less
  - Instruction – Tell to processor what to do
- Information
  - Processed data
  - Meaning full
  - Useful for decision making
  - Valuable than data

II. Storage devices can be categories as volatile and non-volatile. Explain them with two example for each storage.

> Volatile memory
> Computer storage that only maintains its data while the device is powered
> Requires constant power
> Fast
> Expensive

> Example: Cache, Main memory

> Non-volatile memory
> Retain stored information even without electric power
> long-term storage of information
> Relatively cheaper

> Example: HD, CD, DVD, Tape drive

III. Identify each of the names numbered here.
   a. Navigation pane
   b. Back and Forward buttons
   c. Toolbar/Menu bar
   d. Address bar
   e. View button
   f. Preview button

g. Search box

IV. Explain the following computer terms in brief.

a. File

File is an item that contains information that graphically represented by an icon (Text, images, video or music)

b. Folder

Folder is a container used to store files

Folders can also store other folders

Folder within a folder is called a subfolder

Folders are arranged in hierarchal structure

c. Short cuts

- A shortcut is a link to an item (such as a file, folder, or app) on your PC.
- user can easily access the item that the shortcut links to.
- Shortcuts can be distinguished from the original file by the arrow that appears over-layed on the icon

d. Recycle Bin

- Temporary storage to store the deleting files from the file manager (Windows explorer)
- When user deleting files they are automatically moving to Recycle Bin, and do not delete permanently from the storage.
- Items in the Recycle Bin remain there until permanently deleted by user
- User can bypass Recycle Bin by using Shift + Del
- Windows allocates one Recycle Bin for each partition or hard disk
- By default Windows allocates 10% for each Recycle Bin in each partition

Q2

I. Device Manager is a system tool in Microsoft windows system. What are the facilities it provides?
- Change hardware configuration settings.
- Obtain information about each device driver.
- Install & updated device drivers.
- Disable, enable, and uninstall devices.
- Reinstall the previous version of a driver.
- Identify device conflicts and manually configure resource settings.
- Print a summary of the devices that are installed on your computer.

II. "Plug and play (PnP)" The technology used in computing. Explain the technology with examples.
Technology to automatically detect the attached HW in a computer system with minimum user intervention
Examples: PS2 mouse or key board, All USB using devices

III. Your computer infected by a virus and your very important documents are corrupted.
   a. How would you prevent from losing your documents? Explain the steps in windows 7 or windows 10.
      Backup the Documents   → 1 Marks

      - Start button
      - Control Panel
      - System and Maintenance
      - Backup and Restore.
      - Click Set up backup
      - Follow the steps in the wizard
      - Administrator permission required   → 2 Marks

   b. When computer reinstating it keeps a "snapshot" of a computer's data called restore point. Briefly explain why its keep a snapshot?

      By creating a restore point, user can save the state of the operating system and user own data so that if future changes cause a problem, user can restore the system and user data to the way it was before the changes were made

IV.   List 3 types of user accounts in windows 7 and describe each comprising at least three points briefly.

- Administrator account
- Standard user Account
- Guest account   ← 1 Mark Each, Explanation 3 Marks Each.

- Administrator account
  - Able to perform actions that will affect other users
  - Can change security settings
  - Can Install and uninstall software and hardware
  - Access all any file on the computer
  - Change other account settings

- Standard user Account
  - Able in most of the capabilities of the computer,
  - But permission need from an administrator for make changes that affect other users or the security of the computer.
  - Can't install or uninstall software and hardware, delete files that are required for the computer to work, or change settings on the computer that affect other users.
  - Most programs can run, but some programs might require you to provide an administrator password

- Guest account
  - Used to give temporary access to someone
  - The guest account is not available on Windows 7 Starter
  - Can't install software or hardware, change settings, or create a password

Q3

I.   What is meant by modular design?
      Design approach that subdivides a system into smaller parts (modules) that can be independently created and then used in system

II.   What are the advantages of Modular Design? List Three.
      a. Flexible structure
      b. Easy to maintain
      c. Easy to upgrade
      d. Customizable

III. Name three different modules found in personal computer?
      Mother board, Memory modules, Secondary storages, power supply, CPU

IV.   Identify the following components in Main board back panel.
      a. PS2 (Keyboard / mouse)
      b. USB
      c. VGA
      d. RJ45 / Network/Ethernet

V.   Describe and differentiate between PSU and CPU?
      PSU – Power Supply Unit   ← 1 Mark
      CPU – Central Processing Unit   ← 1 Mark

   • **power supply unit (PSU)** converts mains AC to low-voltage regulated DC power for the internal components of a computer   ← 2 Marks

   • **Central processing unit (CPU)** is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.   ← 2 Marks

VI.   Name three expansion cards?
      Sound Card
      VGA Card
      Network Card

VII. Name three different type of communication buses?
      Data Bus
      Address Bus
      Control Bus

Q4

I. Fourth generation computers made with microprocessors. What are the functions they offer?
- Multipurpose, programmable Integrated circuit
- Accepts digital data as input
- Processes according to given instructions
- Provides output

II. Give 2 examples of microprocessors?
- a. Intel Pentium, Intel Celeron, AMD, Intel Core i3, i5, i7

III. List 3 Main Components in a PC? Draw the relationship between the main components and system bus?
- CPU
- Main Memory
- I/O Module
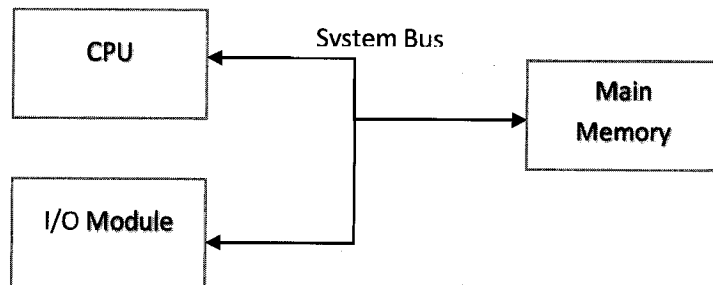
IV. Computer display devices can be categories as flat panels and CRT.
- a. Name 3 different Flat panels
  - PDP – Plasma Display Panel
  - LCD - Liquid Crystal Display
  - LED - Light Emitting Diode display

- b. What are the advantages of Flat panel over CRT display
  - Power saving
  - Less weight
  - Thinner – save space

V. Computer storage can be categories as optical and magnetic.
- a. List 3 Type of Optical storage and its maximum size?
  - CD- Compact disc : 700MB / 702MB
  - DVD – Digital Video Disc: 4.7GB / 8.5GB/ 9.4GB/ 17.08GB
  - HD DVD- High Definition Digital Video Disc: 15GB (Single Layer) / 30GB (Dual)
  - Blue Ray: 25GB (Single Layer) / 50GB (Dual Layer)
- b. List 3 Types of Magnetic storage?
  - Tape drive
  - Floppy disk
  - Hard disk

Q5

In your hardware practical session, you have been given all parts of computer and you are required to assemble it without any supervision.

Entertain the answers at your own consideration. But consider highlighted points listed here.

I.   Briefly explain about motherboard installation.

- Install the **processor** and **memory** before the board is installed in the chassis.
- Most processors today run hot enough to require to some form of heat sink to dissipate heat from the processor. Install the **heat sink** on top of the processor if the CPU does not already have a heat sink attached to it, attach it now.
- Refer to the motherboard manufacturer's to set the jumpers, if any, to match the CPU going to install. (Look for the diagram of the motherboard to find the jumper location and look for the tables for the right settings for CPU)

II.   What are the hardware modules that should be connected with power supply unit?

Consider other possible

- Mother board
- Hard drive
- CD/DVD drive
- External fan

III.   Explain connect I/O and other cable to the motherboard.

There are several connections that must be made between a motherboard and the case. If the motherboard has onboard I/O, use the following procedures to connect the cables:

- Connect the **IDE cables** between the **hard disk, IDE CD-ROM**, and athe 40- pin primary and secondary IDE connectors on the motherboard.
- On non-ATA boards, a 25-pin female cable port brackets in normally used for the parallel port.
- If the ports don't have card slot-type brackets, the essential expansion slots may be port knockouts on the back of the case that can use instead.
- .
- Attach the **front panel switch, LED, and internal speaker wires from the case front panel** to the motherboard.

Consider other possible connection

IV.   Explain running the Motherboard BIOS setup program. (CMOS setup)

Now that everything is connect, the system will also test itself to determine whether there are any problems:

- **Power on the monitor** first, and then the system unit, **observe the operation** via the screen and **listen for any beeps** from the system speakers.
- The system should automatically go through a **power-on self-test (POST)** consisting of video BIOS checking, RAM testing and usually an installed component report. If there is a fatal error during the POST, you may not see anything on screen and the system might beep several times, indicating a specific problem. Check the motherboard BIOS documentation to determine what the beep bodes mean.
- If there are no fatal errors, you should see the **POST display on screen.** Depending on the type of motherboard, press a key or series of keys to interrupt the normal boot sequence and get to the setup program screen that allow you to enter the important system information. Normally, the system will indicate via the onscreen display which key to press to activate the BIOS setup program during the POST, check the motherboard manual for the **key to press to enter the BIOS setup.**
- After the setup program is running, use the setup program menus to **enter the current data and time, your hard drive settings, drive types, video cards, keyboard settings** and so on. Most new motherboard enters any parameters for it.
- Once you gave checked over all the setting in the BIOS setup, **follow the instructions on the screen** or in the motherboard manual to **save the settings and exit** the setup menu.

V. After assembling, your computer unable boot. Explain troubleshooting steps to boot the computer.

- At this point, the system should reset and attempt to boot normally from either a Compact disc or hard disk. The system should **boot from CD Drive** and either reaches an installation menu or a **command prompt to locate cd drive.** If there are any problems, there are some basic items to check.
- If the system won't power up at all, **check the power cord.** If the cord is plugged into a power strip, make sure the strip is switched on. There is usually a power switch on the front of the case, but some power supplies have a switch on the back as well. Check to see if the **power switch** is connected properly inside the case. There is a connection from the switch to the motherboard, check both ends to see that they are connected properly.
- **Check the main power connector from the supply to the board.** Make sure the connection are seated fully and if the motherboard is a Baby-AT type, make sure they are plugged in with the correct orientation and sequence.
- If the system appears to be running but you don't see anything on the display, **check the monitor** to ensure that it is plugged in, turned on, and properly connected to the video card.
- Make sure the **monitor cord is securely plugged into the cord.** Check the video card to be sure it is fully seated in the motherboard slot. Remove and reseat the video card and possibly try a different slot if it is a PCI card.
- If the system beeps more than once, the **BIOS is reporting a fatal error** of some kind, **look in the BIOS section** for a table of beep codes.