• Assignment Level Advance

1. Do a practical to Remove storage devices and reinstall it and make a gpt disk .

Yes , we are complete done a practical to remove storage devices and reinstall it and make a gpt disk .

**Convert MBR to GPT Using DiskPart Tool**

1. Type CMD in the Search box.
2. Open Command Prompt, type DiskPart, and press Enter.
3. Type list disk and press Enter. (
4. Type select disk X. (
5. Now type clean and press Enter.
6. Type convert gpt and press Enter.

Topic: ATA

• Assignment Level Intermediate

1. What is ATA ?

The full form of ATA is Advance Technology Attachment .

Advanced Technology Attachment

Advanced Technology Attachment (ATA) is a technology for connecting storage devices such as hard drives and CD-ROM drives to a computer's motherboard. It was originally developed as a standard for connecting storage devices to computers, and it is now used primarily in the form of ATA hard drives.

ATA is a parallel interface, meaning that data is transferred over multiple wires at the same time. It was developed to replace the older and slower Integrated Drive Electronics (IDE) standard, which was also known as AT Attachment (ATA). ATA has since been replaced by Serial ATA (SATA), which is a newer, faster, and more efficient standard for connecting storage devices to computers.

ATA devices are typically connected to the motherboard using a ribbon cable and an ATA connector. The ATA connector is a 40-pin connector that consists of two rows of 20 pins. The ribbon cable is used to connect the ATA connector to the storage device, and it has 40 wires, with one wire for each pin on the ATA connector.

ATA hard drives are typically used as primary storage devices in computers, and they are often used to store the operating system, applications, and data files. They are generally more affordable and have larger storage capacities than solid-state drives (SSDs), which are a newer type of storage device that uses flash memory rather than spinning disks to store data. However, SSDs are generally faster and more durable than ATA hard drives.

* Advantages of Advanced Technology Attachment (ATA)  
    
  Compatibility: ATA is a widely used interface, and it is compatible with a wide range of devices, including hard drives, CD-ROM drives, and other storage devices. This makes it easy to connect a variety of storage devices to a computer .

Serial ATA (Serial Advanced Technology Attachment or SATA) is a command and transport protocol that defines how data is transferred between a computer's motherboard and mass storage devices, such as hard disk drives (HDDs), optical drives and solid-state drives (SSDs)

• Assignment Level intermediate:

1. Describe working of ATA.

Advanced Technology Attachment (ATA) is a standard interface for connecting storage devices such as hard drives and CD-ROM drives to a computer motherboard. ATA is also known as IDE (Integrated Drive Electronics) because it integrates the control electronics for the drive into the drive itself, rather than on the motherboard as in earlier designs.

ATA uses a parallel interface to transfer data between the storage device and the computer, with a maximum transfer rate of 133 MB/s. The ATA standard includes both a physical interface and a protocol for communication between the device and the computer.

There are two main types of ATA devices: master and slave. The master device is the primary storage device and is connected to the first ATA interface on the motherboard. The slave device is the secondary storage device and is connected to the second ATA interface on the motherboard.

ATA devices are connected to the motherboard using a 40-pin ribbon cable. The cable has two connectors, one for the master device and one for the slave device. The connectors are labeled with "M" and "S" to indicate which device they are for.

ATA devices can be used to store data, such as documents and pictures, and can also be used to run programs, such as operating systems and applications. ATA has been largely replaced by newer interface standards, such as SATA (Serial ATA), which offer faster data transfer rates and other advantages. However, ATA devices are still in use in some older systems and are also used in some newer systems as a secondary storage option.

• Assignment level Advanced:

1. Do a practical to identify and install ATA cables ?

Yes , we are complete done a practical to identify and install ata cables .

**How to Install a Serial ATA Hard Drive**

1. Power down the computer. ...
2. Open the computer case. ...
3. Install the hard drive to the drive cage. ...
4. Connect the Serial ATA cable to the primary or secondary Serial ATA connector on the motherboard or PCI card. ...
5. Attach the other end of the Serial ATA cable to the hard drive.

Topic: SATA

• Assignment Level Basic

1.What is SATA?

Serial ATA (Serial Advanced Technology Attachment or SATA) is a command and transport protocol that defines how data is transferred between a computer's motherboard and mass storage devices, such as hard disk drives (HDDs), optical drives and solid-state drives (SSDs). As its name implies, SATA is based on serial signaling technology, where data is transferred as a sequence of individual bits.

SATA refers to the communication protocol itself and the industry standards adhered to by the OEMs that produce SATA-compatible cables, connectors and drives.

The Serial ATA International Organization (SATA-IO) oversees the development of the technical specification. SATA specifies a transfer format and a wiring arrangement. It succeeded Parallel ATA ([PATA](https://www.techtarget.com/whatis/definition/Parallel-ATA-Parallel-Advanced-Technology-Attachment-or-PATA)) as the communications interface for most new computer systems. Those systems also usually support serial-attached SCSI ([SAS](https://www.techtarget.com/searchstorage/definition/serial-attached-SCSI)) and non-volatile memory express ([NVMe](https://www.techtarget.com/searchstorage/feature/The-present-and-likely-future-of-the-NVMe-protocol)) communication protocols.

SATA is a serial version of the Integrated Drive Electronics ([IDE](https://www.techtarget.com/searchstorage/definition/IDE)) specification for PATA hard drives that use parallel [signaling](https://www.techtarget.com/whatis/definition/signaling). SATA cables are thinner, more flexible and less massive than the ribbon cables required for conventional PATA hard drives.

• Assignment Level Advance

1. Describe the working of SATA .

**SATA**, in full **serial advanced technology attachment**, also called **serial ATA**, an interface for transferring [data](https://www.britannica.com/dictionary/data) between a [computer](https://www.britannica.com/technology/computer)’s central circuit board and storage devices. SATA replaced the long-standing PATA (parallel ATA) interface.

Serial communication transfers data one [bit](https://www.britannica.com/technology/bit-communications) at a time, rather than in several parallel streams. Despite the apparent advantage of the parallel model, in practice serial transmission is less susceptible to interference, allowing SATA to operate at significantly higher speeds than PATA. The serial model also allows for simpler and slimmer cabling.

The first version of SATA communicated at 150 megabytes per second (MBps), compared with PATA’s 133 MBps. The standard was soon upgraded to 300 MBps in 2004 and then to 600 MBps in 2009—which was estimated to be [sufficient](https://www.britannica.com/dictionary/sufficient) to accommodate 10 years of advances in device throughput. SATA supports time-saving native command queuing (a technique that optimizes [hard disk](https://www.britannica.com/technology/hard-disk) read and write access), as well as hot swapping, which allows system components to be replaced while a computer is powered on. SATA is not directly compatible with PATA [hardware](https://www.britannica.com/technology/hardware-computing) connections, but it is fully compatible with the old standard’s [software](https://www.britannica.com/technology/software) drivers, meaning that [operating systems](https://www.britannica.com/technology/operating-system) do not have to be modified to support it.

PATA dates from the mid-1980s, and it was continually upgraded over subsequent decades until data transfer rates reached an effective ceiling. Several separate industry working groups began developing SATA in 2000, ultimately consolidating the specification through the Serial ATA International Organization (SATA-IO). The first SATA specifications were released in 2003. An [iteration](https://www.merriam-webster.com/dictionary/iteration) to support external devices, dubbed eSATA, was introduced in 2004. In the early 2020s SATA began to be replaced by the [PCIe](https://www.britannica.com/topic/PCIe) (Peripheral Component Interconnect Express) standard, which allowed for much faster data transfer.

1. Do a practical to identify sata.

Yes , we are complete done a practical to identify SATA .

Check the specifications and look for the Interface option. You have a SATA drive if you see SATA, S-ATA, or Serial-ATA. Instead, if you want to check physically, you need to check the connector pins. If you find 7 pins on your hard drive, it's a SATA drive.

1. Do a practical to install SATA .

YES , we are complete done a practical to install SATA .

You can attach a SATA SSD directly to your desktop case. Mounting it to the case can involve either screwing the drive to the metal, or putting the drive into a tray first and then attaching it. Either way take care to make sure you have enough cable length to safely route the cables inside the case .

SATA is easier to install than IDE, because it only requires one cable per device and does not need any jumpers or settings. SATA devices can also be detected automatically by the motherboard and the operating system, without any manual configuration.

1. Where does SATA is used.

SATA is the interface of a hard drive used to read and write data to and from the data storage—either HDD or SSD—and the computer. Also called serial ATAs, these devices are usually found in desktop computers, laptops, servers, and even gaming consoles.

SATA (also referred to as Serial ATA) stands for Serial Advanced Technology Attachment, an industry-standard bus interface for connecting a computer's host bus adapter to storage devices such as hard disk drives (HDD), optical drives and solid-state drives (SSD). SATA cables are typically used inside a computer's case.

SATA Data Cable  
  
It packs a connector with 7 pins and is mainly used to connect a hard disk to a PC's motherboard. In short, one end should be connected to the port on your hard disk. The other end should be connected to the SATA connector port, which is found on the motherboard.

Several separate industry working groups began developing SATA in 2000, ultimately consolidating the specification through the Serial ATA International Organization (SATA-IO). The first SATA specifications were released in 2003. An iteration to support external devices, dubbed eSATA, was introduced in 2004.

Topic: SCSI

• Assignment Basic

1. What is SCSI ?

SCSI ( the Small [Computer System](https://www.techtarget.com/searchwindowsserver/definition/system) Interface, ) is a set of American National Standards Institute ([ANSI](https://www.techtarget.com/searchdatacenter/definition/ANSI)) standard electronic interfaces that allow personal computers ([PCs](https://www.techtarget.com/whatis/definition/personal-computer-PC)) to communicate with peripheral hardware such as [disk drives](https://www.techtarget.com/searchstorage/definition/hard-disk-drive), [tape drives](https://www.techtarget.com/searchstorage/definition/tape-drive), [CD-ROM](https://www.techtarget.com/searchstorage/definition/compact-disc) drives, [printers](https://www.techtarget.com/whatis/definition/printer) and [scanners](https://www.techtarget.com/whatis/definition/scanner) faster and more flexibly than previous [parallel](https://www.techtarget.com/whatis/definition/parallel) data transfer interfaces.

### SCSI and devices

Although not all devices support all levels of SCSI, SCSI standards are generally [backward-compatible](https://www.techtarget.com/whatis/definition/backward-compatible-backward-compatibility). That is, if an older peripheral device is attached to a newer computer with support for a later standard, the older device will work at the older and slower data rate. In personal computing, SCSI interfaces have been replaced, for the most part, by Universal Serial Bus (USB). In the enterprise, SCSI is still used in [server farms](https://www.techtarget.com/whatis/definition/server-farm-Web-farm-Web-server-farm) for hard drive [controllers](https://www.techtarget.com/whatis/definition/controller).

1. -Why SCSI needed ?

SCSI, in full Small Computer System Interface, once-common standard for connecting peripheral devices (disks, modems, printers, etc.) to small and medium-sized computers. SCSI has given way to faster standards, such as FireWire and USB (Universal Serial Bus).

Depending on the standard, generally it can connect up to 16 peripheral devices using a single bus including one host adapter. SCSI is used to increase performance, deliver faster data transfer transmission and provide larger expansion for devices such as CD-ROM drives, scanners, DVD drives and CD writers .

One of the main benefits of SCSI over FC SAN is that it offers high performance and low latency for data backup and recovery. Because SCSI is a block-level protocol, it can transfer data directly from the disk to the server without any intermediate layers or conversions.

SCSI is suitable for complicated installations and server environments due to its high performance. IDE is a simpler interface that is largely used to connect internal storage devices to desktop computers .

2-Do a Practical to install scsi.

Installing Windows 10 on a computer with an SCSI enabled hard drive can be done by following these steps:

1. Connect the SCSI hard drive to the computer and make sure it is recognized by the system.
2. Insert the Windows 10 installation media (DVD or USB) into the computer and restart the system.
3. Press the appropriate key to enter the BIOS setup utility and configure the system to boot from the installation media.
4. Follow the on-screen instructions to begin the Windows 10 installation process.
5. When prompted to select a hard drive to install Windows, select the SCSI hard drive and continue with the installation process.  
   It's important to note that some older SCSI hard drives may not be compatible with Windows 10, so it's a good idea to check the manufacturer's website for any compatibility issues before attempting to install the operating system.

Topic: Laptop

• Assignment Level Basic: 1.

1 - What is laptop?

A laptop, sometimes called a [notebook computer](https://www.techtarget.com/searchmobilecomputing/definition/notebook-computer) by manufacturers, is a battery- or AC-powered personal computer ([PC](https://www.techtarget.com/whatis/definition/personal-computer-PC)) smaller than a briefcase. A laptop can be easily transported and used in temporary spaces such as on airplanes, in libraries, temporary offices and at meetings.

A laptop can be turned into a desktop computer with a docking station, which is a hardware frame that supplies connections for peripheral [input/output](https://www.techtarget.com/whatis/definition/input-output-I-O) devices such as a monitor, keyboard and printer.

A laptop is a personal computer that can be easily moved and used in a variety of locations. Most laptops are designed to have all of the functionality of a desktop computer, which means they can generally run the same software and open the same types of files.

1. -What are the types of laptop?

### Types of laptops

Differences in these core components are what distinguish laptop computers. Some core characteristics of laptops are the following:

* **Size.** One of the key points of a laptop is portability. Smaller laptops are lightweight and easier to carry. A bigger laptop offers a bigger screen size.
* **Screen resolution.** Higher [resolution](https://www.techtarget.com/whatis/definition/resolution) liquid crystal display or LCD screens display sharper graphics and increase the usable viewing area. High pixel density displays are becoming increasingly popular.
* **Processing power.** Laptop [processors](https://www.techtarget.com/whatis/definition/processor) have two, four or eight cores and, because of that, vary in performance.
* **Memory.**Typically, laptop random access memory ([RAM](https://www.techtarget.com/searchstorage/definition/RAM-random-access-memory)) is 4, 8 or 16 GB. The most common RAM is 8 GB, and memory is often soldered to the motherboard.
* **Input.** Laptops often have a built-in microphone, video camera and various input ports, such as Lightning, HDMI and USB ports. Some companies have gradually reduced the number of ports on the laptop body. Laptops use several different approaches for integrating a [mouse](https://www.techtarget.com/whatis/definition/mouse) into the keyboard, including touch pads, [trackballs](https://www.techtarget.com/whatis/definition/trackball) and pointing sticks.
* **Durability.** Laptops vary in durability; some are designed for use in rugged conditions.
* **Design.** Laptop designs and accompanying marketing terms vary. Notebooks, netbooks and subnotebook types denote different laptop sizes. New laptops, such as hybrid and convertible ones, feature displays that detach from the computer and function as touchscreen tablets.
* **Accessories.** Various laptop accessories -- such as a detachable keyboard or a second touchpad -- can influence purchasing decisions.
* **Battery life.** Laptops are battery-powered, as well as having power adapters to plug into a power source. Batteries vary among laptops, and [battery life](https://www.techtarget.com/whatis/definition/battery-life) can also influence buyers.

Users buy different types of laptops for different purposes. A [gaming](https://www.techtarget.com/whatis/definition/gaming) laptop might require higher resolution and processing power, whereas a good laptop for business might be lightweight for traveling and have more memory. A laptop for use in field service might need to be more durable.

1. - Diffrent names of laptop

A laptop computer or notebook computer, also known as a laptop or notebook for short, is a small, portable personal computer (PC).

**Laptop computer**

* laptop.
* microcomputer.
* minicomputer.
* notebook computer.
* palmtop.

• Assignment level Intermediate:

1. What are the parts of laptop?

Laptops typically have a clamshell form factor with a flat panel screen (usually 11–17 in or 280–430 mm in diagonal size) on the inside of the upper lid and an alphanumeric keyboard and pointing device (such as a trackpad and/or trackpoint) on the inside of the lower lid, although 2-in-1 PCs with a detachable keyboard ...

The parts of laptop include display screen, keyboard, base panel, top panel, Cooling Fan, RAM, hard disk, palm rest assembly, battery, hinges, speaker, optical drive, antenna etc. Introduction: As we know laptop is most common computing device used around the world due to its portable nature

The processor is one of the most important components because it's the brain of the laptop. Whether you're pressing a key or opening a file, the processor is what that executes the command. For simple tasks like surfing the web or writing an impassioned e-mail, we'd recommend a dual-core processor.

2. Do a practical of identifying parts of the laptop.

Yes , we are complete done a practical to identifying parts of the laptop .

A laptop has several primary components. The primary external components are the top panel, display, base panel, keyboard, touchpad, and palm rest assembly. The main internal parts are the processor, RAM, hard drive, optical drive, video card, wireless card, fan, and battery.

• Assignment level Advance.

1. -Do a practical to disassemble the laptop.

Remove the bottom panel of your laptop, in most cases, this will require a screwdriver. If you're not sure what you need to remove your bottom panel, refer to your laptop manual or search for a copy of the manual online. Keep the fan from turning while you're trying to clean it by holding it down with one finger.

**Disassemble your laptop**

1. Step 1 - Turn off the computer. ...
2. Step 2 - Remove back panels. ...
3. Step 3 - Remove components. ...
4. Step 4 – Remove hinge cover plate. ...
5. Step 5 – Remove laptop screen. ...
6. Step 6 – Remove screws. ...
7. Step 7 – Pry case apart.

2-Do a practical to change the RAM in the laptop.

If you don't have an extra RAM slot, you can remove the existing RAM and replace it with a higher capacity RAM. For example, if you own a laptop with 8GB of RAM with a single RAM slot, in such case you may have to remove your existing 8GB RAM module and replace it with something higher.

**How to upgrade laptop RAM**

* Scroll to section.
* Hardware used.
* Short version.
* Turn off unplug get access.
* Survey the memory slots area ground yourself.
* Position new memory stick with correct orientation.
* Push memory to click into position.
* Close up tighten up check memory configuration in Windows.

TOPIC: PRINTER

• ASSIGNMENT LEVEL BASIC:

1. WHAT IS PRINTER ?

A printer is a device that accepts text and graphic output from a computer and transfers the information to paper, usually to standard-size, 8.5" by 11" sheets of paper. Printers vary in size, speed, sophistication and cost.

printer, also called computer printer, electronic device that accepts text files or images from a computer and transfers them to a medium such as paper or film. It can be connected directly to the computer or indirectly via a network

A line printer is an impact printer which makes use of a continuous feed of paper and prints one line of text at a time. Although they have been replaced in most instances by high-speed laser printers, they are still used in some business as they are low cost and have the ability to print on multi-part forms.

Printers are one of the common computer peripheral devices that can be classified into two categories that are 2D and 3D printers. The 2D printers are used to print text and graphics on a paper, and 3D printers are used to create three dimensional physical objects.

2-IS IT A INPUT DEVICE OR OUTPUT DEVICE?

Input devices are controlled by the users. Output devices are controlled by computers. Mouse, Keyboards etc., are input device examples. Monitors, Printers etc., are examples of output devices.

Printer is an output device, which is used to print information on paper. The printed output produced by a printer is often called a hard copy, which is the physical version of an electronic document.

• Assignment level intermediate:

1. - Describe the types of printer.

Printers are one of the common computer peripheral devices that can be classified into two categories that are 2D and 3D printers. The 2D printers are used to print text and graphics on a paper, and 3D printers are used to create three dimensional physical objects.

Different types of printersInkjet printers recreate a digital image by spraying ink onto paper. These are the most common type of personal printer. Laser printers are used to create high-quality prints by passing a laser beam at a high speed over a negatively charged drum to define an image.

**Types of Printers**

* Laser Printers.
* Solid Ink Printers.
* LED Printers.
* Business Inkjet Printers.
* Home Inkjet Printers.
* Multifunction Printers.
* Dot Matrix Printers.
* 3D Printers.

2. Describe inkjet printer.

Inkjet printers are a category of printer in which printing is done with the help of inkjet technology. The technology works by spraying ionized ink directed by magnetic plates onto the paper, which is fed through the printer. As inkjet printers are more affordable than other types of printers, they are commonly used as home and business printers.

An inkjet printer consists of a print head, ink cartridges, paper feed assembly, belt and stabilizer bar. Inkjet printers are capable of creating high-quality images and high-resolution photos with vivid colors. They can work with most types of papers, although they work best with high-quality papers.

Inkjet printers have many advantages. Compared to most printers, they are affordable and easy to use. Similar to laser printers, inkjet printers are inherently quiet. They are great image printers and are quick starters. They are ready to print and do not require any warm-up time. They are also compact, generally requiring less space. With these features, they are more popular as home printers.

There are certain disadvantages for inkjet printers. The print head is less durable in most cases. Inkjet printer ink is expensive and can potentially dry up, causing not only wastage of ink but also blockages within the printer. Also, compared to laser printers, they are slow to work and thus are not considered suitable for high-volume printing.

• Assignment level Advanced:

1. Do a practical of network installation of the printer.

Yes , we are complete done a practical of network installation of the printer .

**How to connect a printer to your home network.**

1. Open the Control Panel.
2. Double-click the Printers icon.
3. Double-click the Add a printer icon.
4. Click Next to start the Add a printer wizard.
5. Select Network Printer and click Next.
6. Type the network path for the printer.

**How to connect a printer via wireless network**

* Step 1: Locate your settings. Once turned on and ready for configuration, you'll need to connect the printer to your home WiFi. ...
* Step 2: Link your WiFi network. ...
* Step 3: Complete connectivity. ...
* Step 4: Locate your printer settings. ...
* Step 5: Connect the printer to the computer.

2-do a practical to troubleshoot the printer of no cartridge error

Yes , we are complete done a practical to troubleshoot the printer of no cartridge error .

Check for paper jam, enough paper to print, paper is correct to feed, tray or door is in proper position. Check user guide or Web site for troubleshooting suggestions else take the printer to a certified repair shop. Check for OS related problems as in windows they are shown in the device manager.

**Fix printer connection and printing problems in Windows**

1. Unplug and restart your printer. ...
2. Check cables or wireless connection. ...
3. Uninstall and reinstall your printer. ...
4. Install the latest driver for your printer. ...
5. Clear and reset the print spooler. ...
6. Change a printer's status to "online" ...
7. Unplug and restart your printer.