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**Q1 Part A)**

**ANSWER**

**IMAGE SCANNER.**
Scanning a document and saving it in an image file format.it is similar to captured a picture of a document with a camera or making a copy of it through using a copy machine, but instead you are using a scanner. If you would like to edit the scanned image in your word processor, you will have to perform OCR on the image to convert the image into editable text.

**OCR (OPTICAL CHARACTER RECOGNITION.**
OCR stands for Optical Character Recognition. It is a technology that converts documents that you can read into documents that your computer can read. During the conversion, the document is analyzed, and characters and words are saved as editable text.

**LIMITATIONS OF IMAGE SCANNER:**

* Stored image can be altered with image processing software.
* Electronic format of a scanned image is its bit map representation.

**OCR OVERCOMES THESE LIMITATIONS:**

* OCR is extremely complex because it is difficult to make a computer recognize an unlimited number of typefaces and fonts.
* Scanner equipped with characters recognition software that converts the bit map images of characters to equivalent ASCII codes.

**Q1 Part B)**

**ANSWER**

* MICR is a technology used to verify the originality of document papers especially CHEQUES.
* Magnetic ink contain iron oxide particle which magnetized and can be ready using specialized equipment that is united with MICR.
* MICR is used by banking industry for rapid processing of large number of CHEQUES.
* MICR sorts data on CHEQUES and distribute to other banks for further processing.
* Bank identification and account number and CHEQUES numbers are pre-printed using characters from a special character set on all CHEQUES.

**Q2 Part A)**

**ANSWER**

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| --- | --- |
| PRINTER | PLOTER |
| A printer is an external hardware output device that takes the electronic data stored on a computer or any other storage device and generates a hard copy of the data. | A plotter is an output device commonly used for computer-aided design applications, to output large vector designs such as architectural blueprints. |
| Printer is a peripheral device in nature and creates a solid copy of the digital data that is represented on the computer screen. | The plotter is either a peripheral component that you add to computer system or a standalone device with its own internal processor. |
| Software for printers includes Photoshop and any other image-editing program. | Plotter software includes Adobe Illustrator, Corel, Flexi and CAD. |
| A printer provides the output file data in a format such as bitmap or pixels. | A plotter provides the output in a format that is similar to a vector graphic/ image created with lines. |
| Printers are less costly as compared to plotters. | Plotters are expensive as compared to printers. |
| Printer produces the data in hardcopy format at a faster speed when compared to a plotter. | Plotter produces the data in hardcopy at a relatively slower rate when compared to a printer. |
| Printers can read BMP, PDF and JPG TIFF formats. | Plotters can read files in the DWG, CDR, Al etc |
| Printers are mainly used to produce graphics and text on a physical medium such as paper. They are also, mostly used by graphic artists for posters, signs and other professional quality display. | Plotters are mainly used in specialized fields such as drawing, architecture and engineering. |
| Printers are resolution dependent, an image produced by a printer (raster image) is enlarged, the size of the pixels simply gets bigger resulting in distortion of the image. | Usually, plotters are resolution independent, an image produce by a plotter can be enlarged to any size without losing clarity. |
| There two main type of printers, they include impact and non-impact printers. | There are four main types of plotters; they include Drum plotter, Flatbed plotter, Inkjet plotter and Cutting plotter.  |

**Q2 Part B)**

**ANSWER**

**LASER PRINTER**:

Laser printer is an electrostatic digital printing process. It produces high-quality text and graphics by repeatedly passing a laser beam back and forth over a negatively charged cylinder called a "drum" to define a differentially charged image.

**PROCESS OF LASER PRINTER**

* The printout then automatically comes out of the printer from the side.
* When you select a document to print on computer, the computer then sends an electronic stream of data which consists of many characters. This stream is then sent straight to your printer.
* Then a special electronic circuit that is present in the laser printer figures out and identifies how the data needs to be printed correctly on the paper.
* After the circuit identifies a way to print the data on the page, the corona wire then gets activated and it is responsible for giving a static electric charge.
* The corona wire then charges up the photoreceptor drum and after starts spreading the data uniformly on its surface.
* After this the laser beam then starts drawing the image of the page on the drum and everything gets scanned on the drum in a uniformed way. What actually happens is that when that laser beam hits the drum, it creates positive and negative charges and when the paper is being printed, the positive charges go to the white part of the page and the negative charges go to that part of the page which needs to be black.
* The ink roller then coats itself with the toner powder by touching the photoreceptor drum. Only the negative charges of the ink roller then get attracted towards the drum and a proper inked image then builds up on the surface of the drum.
* The paper on the inside of the printer then starts to move towards that drum and then the image gets transferred to the paper.
* The inked paper then passes by the fuser unit where both pressure and heat permanently absorb the toner particles into the fiber of the paper.

**Q3 Part A)**

**ANSWER**

**METROPOLITAN AREA NETWORK**

A group of computers and network devices connected together within a large physical area. Companies that has several branches within a city. It can be a collection of several LAN’s within the same city.

**EXAMPLE:**

Man is used by Banks.

**Q3 Part B)**

**ANSWER**

**TOPOLOGY:**

Topology Network is the arrangement of the elements (links, nodes, etc.) of a communication network. A broad variety of physical topologies have also used in LANs, including mesh, ring, bus, and star. Opposite, mapping the data flow between the components determines the logical topology of the network.

The topology which setup a local area network is BUS topology

**REASON:-**

The reason is that all devices are connected to a central cable, called the bus or backbone. Bus networks are relatively it is not expensive and easy to install for small networks. Ethernet systems use a bus topology.

**Q4 Part A)**

**ANSWER**

1. **GRAPHIC MEDIA:**
* Computer graphics deals with generation representation and display of picture with a computer.
* For processing graphic media some common hardware devices are used called mouse, joystick, digitizer, printer and plotters.
* Some desirable features are painting, drawing software and screen capture software.
1. **TEXT MEDIA:**
* Alphanumeric characters are used to present information in text form.
* Keyboards, computer screens and printer are devices used for processing text media.
* Hypertext, text searching and text editing are some highly describe features of a multimedia computer system for better presentation and use of text information.
* **VIDEO MEDIA:**
* Computer video media deals with the recording and display of a sequence of images to create an impression movement. Each individual image of such a sequence is called frame.
* Video monitor, video camera video board and video editor are some devices used for processing video media.
* Some desirable features are video clips and recording and playback capabilities.
1. **ANIMATION MEDIA:**
* Deals with the display of a set of pictures or images to create an effect of visual changes or motion similar to movie.
* Animation is used in that situation where videography is not possible.
* Deals with sequence of picture to create a moment for a jerk free full motion animation video.
1. **AUDIO MEDIA:**
* Computer audio deals with the recording and playback of audio and sound with a computer.
* Microphone, soundboard, MIDI devices, sound synthesizer and sound editor are the devices used for processing of audio media.