Q1: (a): Discuss a few limitation of image scanners? How Optical Character Recognition (OCR) device overcomes these limitations?

Answer: Limitation of image scanners:

An image scanner is a digital device used to scan images, pictures text and objects and then convert them to digital images. Image scanner are used in a veriety of domestic and engineering, orthotics, gaming and testing.

The following notes cover limitations pertaining to the Scanner process of Data Insight: In case of Window 2012 servers used as Windows File Servers, the Scanner does fetch a group having permission based on a condition.

Resilient File System is supported only for scanning. Auditing is not supported since the drive cannot be attached to the filter driver.

Scanner does not support share names of more than 200 characters. Scanners modifies the access time of directories while traversing the filesystem.

Optical Character Recognition (OCR) device overcomes these limitations:

Text from a source with a font size of less than 12 points will result in more errors. Most document formatting is lost during text scanning, except for paragraph marks and tab stops. Sometimes bold, italics and underline are recognised, depending on your software.

The output from a finished text scan will be a single column editable computer file. This is computer file will always require spellchecking and proofreading as well as reformatting to desired final layout.

Scanning of plain text files or spreadsheet prints outs usually work, however the data pints outs usually work, however the data needs to be reformatted to match the original.

Source materials that often cause issues are:

Forms
Small text
Blurry copies
Mathematical formulas
Draft copies
Colored paper
Handwritten text
Unusual or script-type fonts
Document formatting may be lost during text

scanning (i-e, bold, otalic and underline are not always recognized.
Output from a finished text can may be a single column editable text file. Text file will always require spellchecking and proofreading as well as reformatting to desired final layout.

(b): Elaborate the use of Magnetic Ink Character Recognition Device (MICR)?

A: Magnetic Ink character Recognition.

Magnetic Ink character Recognition is a character recognition System that uses special ink and characters. When a document that contains this ink need to be read, it passes through a machine, which magnetizes the ink and then translate the magnetic information into characters.

MICR technology is used by banks. Numbers and characters found on the bottom of checks are printed using Magnetic Ink. To print Magnetic Ink need, you need a laser printer that accepts MICR toner.

USERS:

MICR is used to verify the legitimacy

or originality of paper documents, especially checks MICR is used to extremely in banking because magnetic-inks characters are difficult to forge and are therefore ideal for making and identifying cheques.

QUESTION NO: 2

a) Differentiate between printer and plotter?

Difference between printer and plotter.

Printer	Plotter.
A printer is an external hardware output device that takes the electronic data stored on a computer and generates a hard copy of data.	1) A plotter is an output device commonly used for computer aided, design applications to output large vector design such as architectural blueprints.
2) Printer is a peripheral device in nature.	2) Plotter is either a peripheral component that you add to computer system with its own interna process.
Printers can read BMP, Pdf and TIFF formats.	3) Plotters can read files in CDR, AI and other vector formates.
4) Software include photoshop or any other image editing program.	4) Software include adobe illustrator, coreal and CAD.

5) Printers are less costly.	5) Plotters are relatively expensive.
6) Printers provide the output file data in format.	6) A plotter provides the output in a format that is similar to vector.

b) Explain the printing process of a laser printer?

There are typically seven steps involved in the process.

1) Raster image processing:-

The document to be printed is encoded in a page description language. The raster image processor converts the page description into a bitmap which is stored in printer's raster memory. Each horizantal strips of dots across the page is known as raster line. To avoid a buffer underrun a laser printer needs enough raster memory to

hold the bitmap image of an entire page

2) Charging:-

A primary charge roller projects an electrostatic charge onto the photoreceptor a revolving photosensitive drum or belt, which is capable of holding an electrostatic charge on its surface while it is in dark. An Ac bias voltage is applied to the primary charge roller to remove charges left by previous images. The roller will also apply a DC bias on the drum surface to ensure a uniform negative potential.

3) Exposing:-

A laser printer uses lasers because lasers are able to form highly focused precise and intense beam of light. The laser is aimed at a rotating polygonal mirror which directs the light beam through a system of lenses and mirrors onto the photoreceptor drum.

the drum continues to rotates during the sweep and the angle of sweep is canted very slightly to compensate for this motion.

Developing :-

As the drumb rotates, toner is continuously applied in a 15 micron thick layer to the developer roll. The surface of the photoreceptor with the latent image is exposed to the tonner covered developer roll. Toner consists of fine particles of dry plastic powder mixed with carbon black or coloring agents. The toner particles are given a negative charge inside the toner cartridge and as they emerge onto the developer drum they are electrostatically attracted to the photoreceptor's latent image.

5) Transferring:-

A sheet of paper is then rolled under the photoreceptor drum which

has been coated with a pattern where the laser struck it moments before. The toner particles have a very weak attraction to both the drum and the paper but the bond to the drum is weaker and the particles transfer again this time from the drum's surface to the paper's surface.

6) Fusing:-

The papers passes through rollers in the fuser assembly, where temperature up to 427°C. One roller is usually a hollow tube and the other is a rubber backed roller. For proper bonding of the toner, the fuser roller must be uniformly hot.

7) Cleaning and recharging:-

As the drum completes a revolution, it is exposed to an electrically neutral soft plastic blade that cleans any remaining

toner from the photoreceptor drum and deposits it into a waste reservoir. A charge roller then re establishes a uniform negative charge on the surface of the now clean drum, readying it to be struck again by the laser.

Q3: (a) Explain Metropolitan Area Network (MAN) with a suitable example?

A: Metropolitan Area Network (MAN):

A metropolitan area network (MAN) is a network that inconnets users with computer resources in a geographic area or region larger than the covered by even a large local area Network (LAN) but smaller than the area covered by a wide area network (WAN).

The term is applied to the interconnection of networks in a city into a single large network. It is also used to mean the interconnection of several local area networks by bridging them with backbone lines. The latter usage is also sometimes referred to as a campus network.

Example:

Examples of metropolitan area networks of various sizes can be found in the metropolitan areas of london, England, Lodz, Poland; and Geneva, Switzerland. large universities also sometimes use the term to describe their networks. A recent trend is the installation of wireless MANs.

b) Elaborate the use of Magnetic Ink character Recognition Device (MICR)?

A: Magnetic Ink character Recognition:

MICR (Magnetic ink character recognition) is a technology used to verify the legitimacy or originality of paper documents, especially checks. Special ink, which is sensitive to magnetic fields, is used in the printing of certain characters on the original documents. Information can be encoded in the magnetic characters.

The use of MICR can enhance security and minimize the losses caused by some types of crime. If a document has been forged - for example, a counterfeit check produced using a colour photocopy machine, the magnetic link line will either not respond to magnetic fields, or will produce an incorrect code when scanned using a device designed to recover the information in the magnetic characters. Even a legitimate check can be rejected if the MICR redear indicates that the owner of the account has a history of writing bad checks.

Retailers commonly use MICR readers to minimize their exposure to check fraud. Corporations and government agencies also use the technology to speed up the sorting of documents.

Q4: In your opinion, what are the different types of common media used for storage, access and transmission of information? Explain each type in detail?

Answer: Common Media:

Media is something that can be used for presentation of information. Two basic ways to present some information are: Unimedia presentation and Multimedia presentation.

In Single media is used to present information known as Unimedia and in multimedia more than one media is used, to present information.

Common media for storage, access and transmission of information are:

→ Text (alphanumeric characters)
→ Graphics (line drawings and images)
→ Animation (moving images)
→ Audio (Sound)
→ Video (Videographed real-life events)

Text Media:

Alphanumeric characters are used to present information in text form. Computers are widely used for text processing.

Keyboards, OCRs, computer screens, and printers are some commonly used hardware devices for processing text media.

Text editing, text searching, hypertext, and text importing / exporting are some highly desirable features of a multimedia computer system for better persentation and use of text information.

Graphics Media:

Computer graphics deals with generation, representation, manipulation, and display of picture with a computer.

Locating devices, digitizers, scanners, digital cameras, laser, computer screens with graphics display capability, printers and plotters are some common hardware devices for processing graphics media.

Some desirable features of a multimedia computer system are painting or drawing software screen capture software, clip art, graphics important, and software support for high resolution.

Animation Media:

Computer animation deals with generation, sequencing, and display of a set of images to create an effect of visual

change or motion, similar to a movie film.

Animation is commonly used in those instances where videography is not possible or animation can better illustrate the concept than video.

Animation deals with displaying a sequence of images at a reasonable speed to create an impression of movement. For a jerk-free full motion animation, 25 to 30 frames per second is required.

Scanners, digital cameras, video capture board, VCR, computer, moniters and graphics accelerator board are some common hardware devices for processing animation media.

Audio Media:

Computers audio deals with sythesizing, recording, and playback for audio or sound with a computer.

Sound board, microphone, speaker, MIDI devices, sound synthesizer, sound editor and audio mixer are some commonly used hardware devices for processing audio media.

Some desirable features of a multimedia computer system are audio

clips, audio file importing, software support for high quality sound, recording and playback capabilities, text to speech coversation software, speech to text conversation software, and voice recognition software.

Video Media:

Computer video deals with recording and display of a sequence of images at a reasonable speed to create an impression of movement. Each individuals image of such a sequence is called a frame.

Video, camera, video moniter, video board, and video editor are some are of the commonly used hardware devices for processing video media.

Some desirable features or a multimedia computer system with video facility are video clips and recording and playback capabilities.