

Lesson-1

Computer Networking

I = Tick the Correct Answer :-

1) Network consists of two or more entities or objects sharing _____ and information.

a) Computer

b) Printer

c) data (✓)

d) Resources

2) The most commonly used cable is _____ cable with RJ-45.

a) CAT-5 (✓)

b) DAT-4

c) MAT-3

d) MAT-5

3) Computers can be connected to another one via _____

- a) Parallel port
- b) Serial port (✓)
- c) RJ-45
- d) Cable

4) _____ is a necessary component of a computer without which a computer can not be connected.

- a) HUB
- b) MODEM
- c) Network Card (✓)
- d) Switch

5) In Peer-to-Peer network peer is considered as _____.

- a) Small
- b) Big
- c) An equal (✓)
- d) An unequal

II = Match the following :-

- | | |
|----------------|--------------------------------|
| 1) LAN | a) Computer (4) |
| 2) Distributor | b) Type of Network (1) |
| 3) USB Card | c) Network Components (2) |
| 4) Client | d) To connect with network (3) |

(3)

III. Fill in the blanks :-

- 1) WAN stands for Wide Area network.
- 2) MAN has greater range than LAN.
- 3) Networks are classified according to the Geographical area.
- 4) Network Card is a necessary component of a Computer.
- 5) Router is a Central device.

IV. Answer the following questions in short :-

1) What is a Router?

ans:- A Router is a type of device which acts as the central point among computers and other devices over a network.

2) What is Peer to Peer networks?

ans:- Peer means equal. In peer to peer network each computer controls its own, means no need of server, all are in equal charge.

3) What is PCI?

ans = PCI stands for Peripheral Component Interconnect, it is a type of internal network card, which is inserted on a slot of motherboard.

4) What is a Computer Network?

ans = A computer network is a system in which multiple computers are connected to share information and resources.

5) What is distributor?

ans = Distributor is a central body that connects devices, manage or distribute network traffic.

Ex: Hub, Switch, Router.

V = Answer the following questions in long

1.) What are the characteristics of network?

ans = The characteristics of computer network are as follows :-

→ Share resources from one computer to another.

→ Create and store files

→ access files from other computers connected over the network.

→ Connects many devices and make them available to use to other computers of the network.

2) What are the hardware devices which are used in computer networking?

ans- The hardware devices which are required to set-up a computer network are as follows:-

- ① → Network Cables
- Distributors
- Routers
- Internal Network Cards
- External Network Cards

3) Explain the network card?

ans- Network Card is an important component of computer network. Without network card a computer cannot be connected over a network. It is preinstalled in most branded computers. It is also known as network adapter or Network Interface Card (NIC). It is of two types -

- ① Internal Network Cards
- ② External Network Cards

4) Explain types of Network.

Ans: Group of many computers which are connected to each other, is network. There are many types of networks. We can classify networks in following manner —

→ According to geographical area —

- 1) LAN = Local Area Network
- 2) MAN = Metropolitan Area Network
- 3) WAN = Wide Area Network

→ According to components roles —

- 1) Peer-to-Peer Networks
- 2) Server Based Networks

5) Differentiate between LAN, MAN and WAN.

Ans: The difference is as follows —

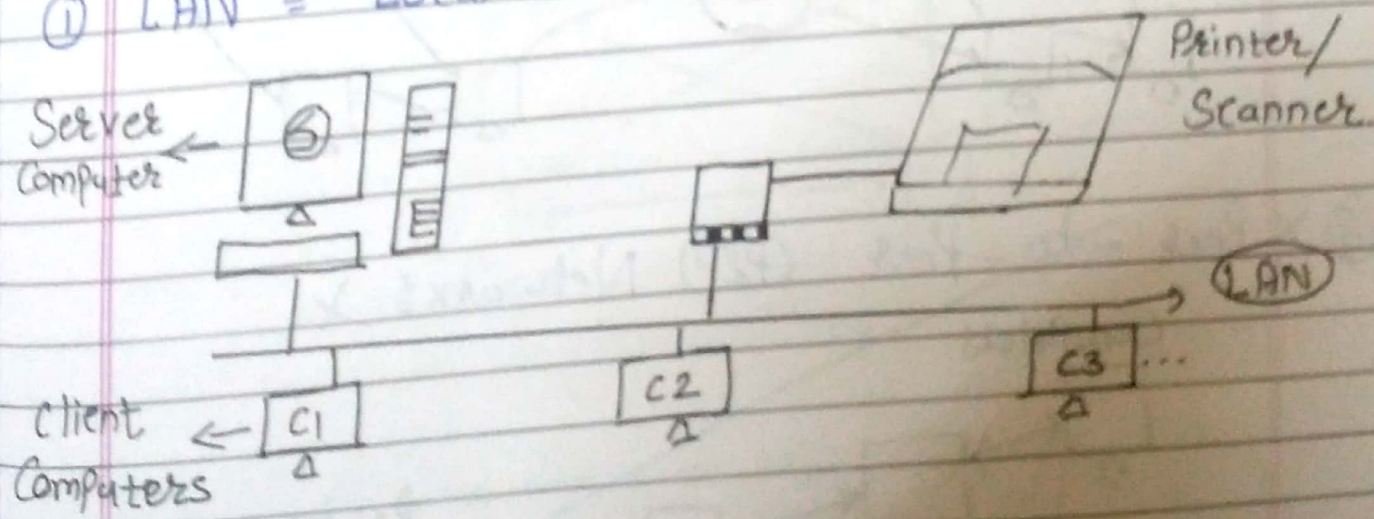
	<u>LAN</u>	<u>MAN</u>	<u>WAN</u>
1) Full-form	Local Area Network	Metropolitan Area Network	Wide Area Network
2) Cost	Cheaper	Costly	Expensive

⑦

3) Area	- Covers small area - Ex: A Room or Building	- Covers relatively large area than LAN - Ex: Town & Cities	- Covers greatest area of all. - Ex: Country or Countries.
4) Components Used	- Switch - HUB	- Modem, - Router	- Radiowave, - Infrared, laser.
5) Data Transfer	- High Speed data transfer	- Moderate (medium)	- Slow

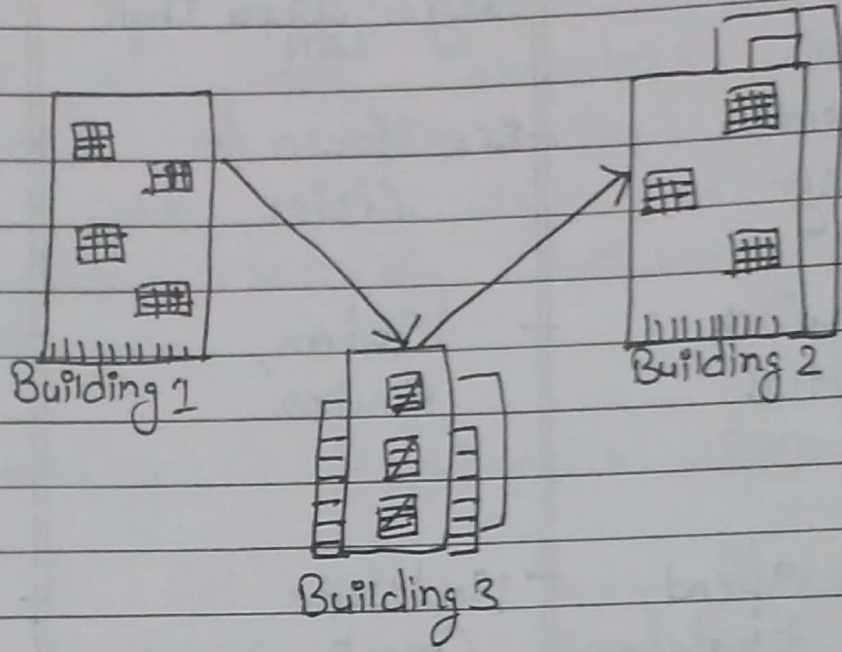
VI: Diagram of types of Networks

① LAN = Local Area Network



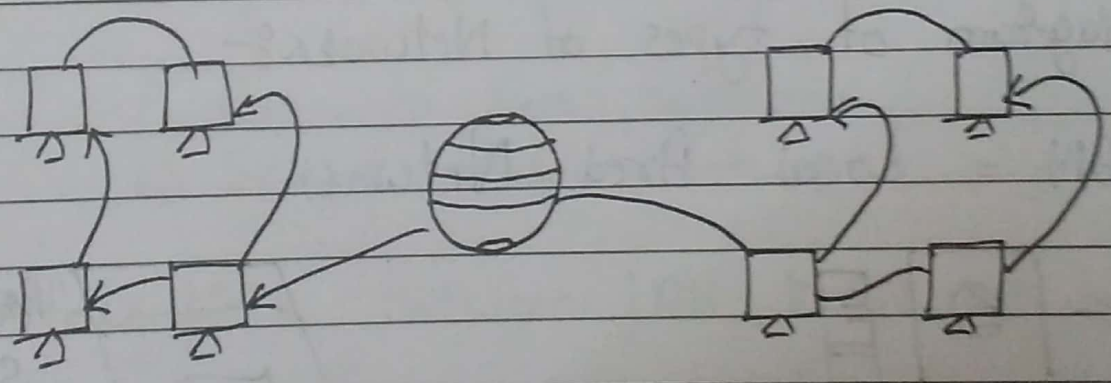
②

MAN = Metropolitan Area Network

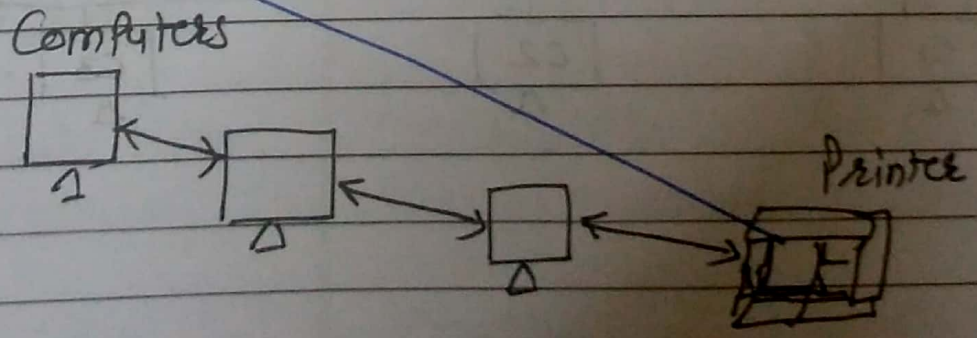


③

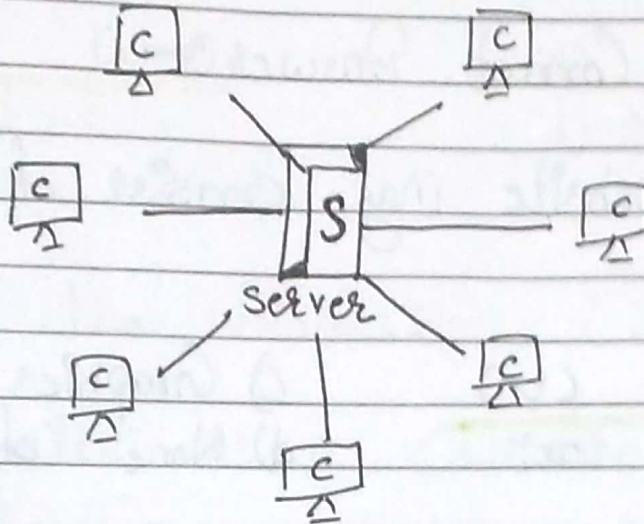
WAN = Wide Area Network



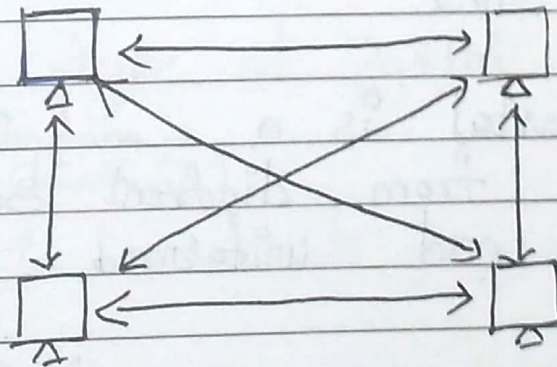
④ X Peer-to-Peer (P2P) Network X



4) Server Based Network



5) Peer to Peer Network (P2P)



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Lesson-2
Flash

1 = Tick (✓) the correct Answer:-

1 = Press _____ or navigate to window library you see the library panel will appear

a = ctrl + P

c = ctrl + F

b = ctrl + L (✓)

d = ctrl + D

2 = Flash is a _____ program specially for use on the web.

a = Multimedia

c = Graphic

b = Multimedia Graphic (✓)

d = Presentation

3 = Flash enables you to create interactive _____ on the web.

a = Movies (✓)

c = Clip

b = Screen

d = Shot.

4 = Empty _____ are shown as hollow circles.

a = Frame

c = Key frame (✓)

b = Screen

d = Multimedia.

5 = The _____ on the timeline is a movable beginning and ending point for your

(2)

total movie.

- a= Movie
- b= Graphic
- c= Playhead (✓)
- d= Frame

II= Fill in the blanks :-

1= For animation in your time line, you can specify a Starting Point and Ending Point for a particular event.

2= Extension of the flash movie is fla.

3= The timeline controls and organizes the movie's content over time using layers and frames.

4= Everything on the stage where something changes is a keyframe.

5= The library is a centralized location where you can view, browse, add, delete and organize symbols.

III= write the steps for the following :-

1= Frame by frame animation :-

S-1= open your own file where you want to write the phrase. So that

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It will appear one frame at a time

S-2 = Pick the Brush tool of any size or Colour

S-3 = on the stage draw your text with Brush Ex: M

(Now Blank Keyframe on timeline will be changed to ~~Blank~~ Keyframe)

S-4 = Select Frame-2 of Timeline & insert a new keyframe. Add next letter (Ex. y) to form the word 'My'

S-5 = Continue to insert a new Keyframe for each letter of your phrase

My Sweet Home

S-6 = Notice Timeline - you have 11 Frames
Drag play head to your first keyframe

S-7 = Goto Control > play
To play your movie. An animation will take place frame by frame.

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2. Add Items to library:—

- S1 = Create a text on drawing area & select it
- S2 = Press F8 or Go to Modify > Convert to Symbol
- S3 = In 'Convert to Symbol' dialog box type the text (name) & select Graphic option from Behaviour
- S4 = Press OK (now your text object is a Graphic and you can see the same text name with a graphic symbol in item list of library).

OR

- S1 = Click on New Symbol icon
- S2 = Fill out the information of Create New Dialog box.
- S3 = Add Symbol directly to library.

3. Delete items to the library:—

- S1 = Select item from library
- S2 = Press delete button.

4. Motion tween:—

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- S1. Create a Keyframe
- S2. Specify a starting frame and ending frame.
- S3. Motion tweening Create a transition between starting & ending frame.
- S4. We can see a smooth transition when we preview animation.

IV - Match the following :-

- | | |
|-------------------|-------------------------------|
| 1 Motion tweening | A. Hollow circles (3) |
| 2 Keyframes | B. Changes in animation (2) |
| 3 Empty Keyframes | C. A centralized location (4) |
| 4 The library | D. Modify (5) |
| 5 F8 | E. Transition (1) |

V - Answer the following in short :-

1. What is animation?

Ans. Animation is a method in which figures are manipulated to appear as moving images.

2. What is flash?

Ans: Flash is a multimedia graphics program specially for use on web, to create animations, videos streaming.

3. Write one feature of flash.

Ans: Flash does not require programming skills & is easy to learn.

4. What is flash library?

Ans: The library is a centralized location having a large collection of symbols such as movie clip, buttons, graphics.

5. What is Timeline?

Ans: Timeline is important toolbar in flash which contains layers and frames. It controls & organizes the movie contents over time.

VI. Answer the following in long.

1. Explain the motion Tween?

Ans: Motion Tween is a feature of Adobe Flash that allows us to easily animate the

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Motion of an object. Animation revolves around the timeline. User specifies a starting and an ending point for a particular event after creating an animation in flash. Motion tween used to give smooth transition between these points over frame by frame. It gives the appearance that the first image evolves smoothly into second image. It is powerful & easy to create. It uses Keyframes.

2 = Explain different types of Keyframes?

ans = Types of Keyframes are as follows -

- → Blank Keyframe = A Blank Keyframe shows on the timeline as an open circle
- → Keyframe = A Key frame appear as a solid circle on timeline it means there is a content on the stage

||||| → Frame = User can have different frames on different layers. It is a short shot appears in sequence

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3= Write about adobe flash library.

Ans: Each Adobe flash Creative Suite document contains a library, a repository of reusable graphics, animation, buttons, sounds, video & fonts. These all elements are known as Symbols.

Symbol is a reusable object created in flash. There are three types of Symbols

- Graphic
- Buttons
- Movie clips.

library is collection of symbols that user can use. User uses a copy of original symbol in its movie, this copy is known as 'Instance'. Each copy/instance have its own properties (like colour, size, function etc).

Symbols can be view, browse, add delete & organized. To view library panel press ctrl + L or navigate to window's library

4= How to start adobe flash?

Ans: To start working on a Flash file follow these steps:-

- 1) Go on file menu
- 2) ~~open~~ select open to open a ".fla" file (on which you are working)

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Lesson = 3 Internet Security

I = Tick the Correct Answer :-

1) SSL is the acronym of _____.

- a) Sector Secure layer.
- b) Secure Socket layer (✓)
- c) Secure Service layer.
- d) Secure Socket lamp.

2) Malware is a type of _____.

- a) Virus (✓)
- b) Anti-virus
- c) Internet Security threats
- d) Worm.

3) Encryption is a type of _____.

- a) Security method (✓)
- b) Algorithm
- c) Authorized user
- d) None of these

4) _____ is a way to verify the message.

- a) Threats
- b) Spam
- c) Phishing
- d) None of these (✓)

5) _____ allow us to verify the author, date and time of signatures, authenticate the message contents.

- a) Small
- b) Big
- c) An equal (✓)
- d) An unequal

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II = Fill in the blanks :-

- 1 = Firewall is a barrier between LAN and Internet.
- 2 = Authentication helps to authenticate Source of messages.
- 3 = Encryption is a type of Internet Security Method.
- 4 = Mobile Ransomware is a type of Internet Security Threat.
- 5 = IPsec designed by Internet Engineering Task Force (IETF).

III = Match the following :-

- | | |
|-------------------------|---|
| 1 = Digital Signatures | A = Information is encoded |
| 2 = Encryption | B = Encrypt data (5) |
| 3 = Hashing | C = SSL (4) |
| 4 = Secure Socket layer | D = Authenticate the sources of message |
| 5 = Hashing algorithm. | E = To verify that the message has been received. (3) |

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Q2. Answer the following in short:

1. What is IPsec?

ans: IPsec stands for Internet Security Protocol. It is a framework of open standards which ensure secure communication through cryptography.

2. What is SSL?

ans: SSL means Secure Socket Layer. It is a standard protocol used for the secure transmission of document over network.

3. What is firewall?

ans: Firewall is a security system which gives protection against virus and other threats against internet by establishing a barrier.

4. What is Integrity?

ans: The term Integrity refers to the accuracy and consistency of data. It makes sure that the data remains intact and unchanged.

5. What is Encryption?

ans: Encryption is a security method in which information is encoded. It uses encryption

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algorithm to generate ciphertext that can only be read if decrypted.

V: Answer the following in long:-

1) Explain the type of encryption?

ans- Encryption is a security method in which information is encoded in such a way that only authorized user can read it.

Encryption algorithm generate ciphertext that can be read only after decryption. There are two types of Encryptions. Schemes —

1) Symmetric key encryption

2) Public Key encryption

2) What is Hash Function algorithm?

ans- Hash function algorithm is a function which provides a way to verify that message received is the same as the message sent. It computes a value based on input taken.

The length of computed value is shorter than the original message

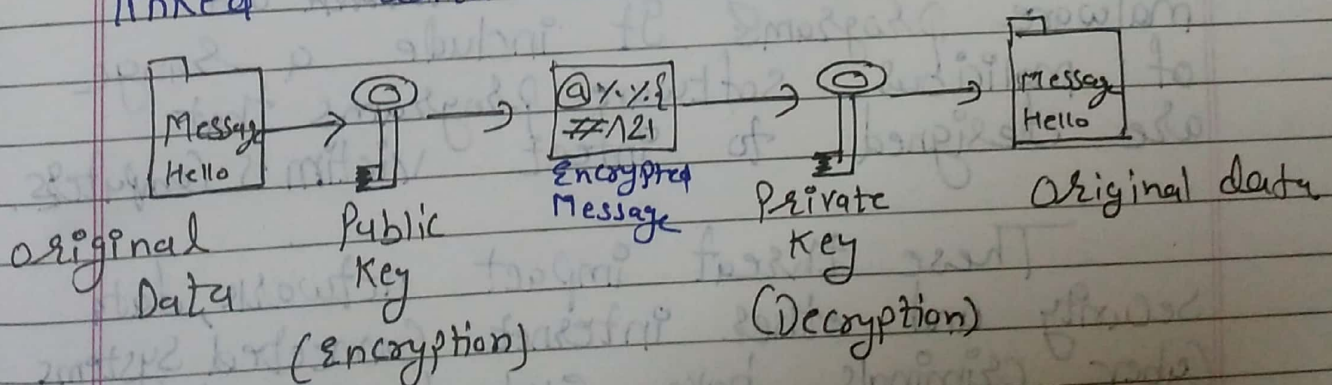
(15)

When this message is sent to receiver, he decrypts the message & computes its hash value using the agreed upon algorithm. If the value sent by sender doesn't match with the hash value of decrypted message, it means that message has been altered.

3) Explain Public Key Encryption?

ans: Public Key encryption is a cryptographic system that uses two keys
 → a public key
 - a private key or secret key

Public key is known to everyone but a private key is known only to the recipient of message. Both the keys are mathematically linked with each other.



Here sender encrypt the message with public key but receiver is receiving message with its own private key by decrypting that message

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4) What are the Applications of digital Signature

ans: There are several reasons to implement digital signature to communications. They are as follows -

→ Authentication = Digital signatures help to authenticate the source of message

→ Integrity = Through digital signature the data remain intact & unchanged

→ Non-Repudiation = Any entity that has signed some information cannot at a later time deny having signed it.

5) Explain Internet Security threats with its types.

ans: Internet Security threats & viruses are malware programs. It include a range of malicious software programs that are designed to infect victim's computers.

These threat impact network, data security and other internet connected systems. Cyber criminals have evolved several techniques to threat privacy & integrity of any account, business & organization.

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Following are some of the threats:-

- Mobile Worms
- Malware
- PC and Mobile Ransomware
- Hacking
- Spam
- Phishing



1

Lesson = 4
The World of Images

A2 Tick the Correct Answer. —

1. The smallest element of a conventional photograph is _____.

- a) Piece of grain (✓) b) inches
c) Pixels d) 1 dot

2. Computer aided detection in mammography

- a) Cropping b) Resizing
c) Imaging Technology (✓) d) Image processing.

3. Analyzes the retinal images to show early sign of diabetic retinopathy

- a) Automated Software (✓) b) Special Software
c) Customized Software d) Image processing

4. _____ Methods are used to continuously keep an eye on the land and oceans.

- a) Digitizing b) Image processing
c) Aerial Surveillance (✓) d) None of these

5. In metal industries it is essential to detect the flaws on the surface

(2)

- a) CT Scan
- b) Digital Scan
- c) Automatic Surface
- d) Automatic surface inspection systems (A)

B// Match the following :-

- | | |
|-----------------------------------|------------------------------------|
| 1. Brain Imaging (A) | A. ophthalmoscope (3) |
| 2. Image processing | B. Scalable Vector Graphics (4) |
| 3. Development of Instrumentation | C. Graphics Interchange format (5) |
| 4. SVG | D. A use of Image Processing (1) |
| 5. GIF | E. PET. (2) |

C// Fill in the blanks :-

- 1. An image is a visual representation of something.
- 2. An image is a picture that has been created or copied and stored in Electronic form.
- 3. The two types of methods used for Image processing are Analog and Digital.
- 4. Digital processing techniques help in manipulation.

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of the digital images by using Computers

52 Visualization observe the objects that are not visible.

D// Write Fullforms of following:-

JPEG

→ Joint Photographic Expert Group

GIF

→ Graphic Interchange format

PNG

→ Portable Network Graphic

SVG

→ Scalable Vector graphic

IFF

→ Tag Image File Format.

E// Answer the following in short

1- What is Image processing?

ans- Image processing is a method to convert an image into digital form & perform some operations on it.

(4)

Q2: What is JPEG types of image?

ans: JPEG is a graphic image file, produced according to a standard from ISO/IEC group of experts having high quality image data with lossy compression.

Q3: What is visualization of images?

ans: Visualization means to observe the objects that are not visible.

Q4: Write the types of images.

ans: Following are the types of images.

→ JPEG

→ SVG

→ GIF

→ IFF

→ PNG

(5)

E// Answer the following in long -

Q1e Explain the type of Images.

ansz Image is a virtual presentation of any thing. It is a picture which is created & stored in electronic form. Image can be described in term of vector & raster graphic.

Image stored in raster form is called bitmap image, which store image digitally. It is composed of many tiny parts called pixels. These images include GIF, JPEG, PNG, TIFF, BMP, TIFF.

Vector graphics are images made up of path (lines) with starting & ending point. It uses shapes, curves, line & text which together make a picture better than pixel. It uses mathematical equation to draw design. It includes SVG, EPS, PDF formats.

Q2e Explain the uses of image processing.

ansz The purposes of image processing are

① Visualization = observe the objects that are not visible.

② Image Sharpening & Restoration = To create a better image

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- ③ Image Retrieval - Seek for the image of interest
- ④ Measurement of pattern = Measure various objects in an image
- ⑤ Image Recognition = Distinguish the objects in an image

Q3 = Explain different formats of images.

Ans: Some common image formats are as follows:-

→ JPEG = This is an image format which is produced according to standard from JPEG & an ISO/IEC group of experts that develop & maintain standard for a suite of compression algorithm for image files. It has extension i.e 'jpg'. These images can be compressed down to 5% of original which makes it suitable for transferring file over internet, with less bandwidth.

→ GIF = It stands for Graphic Interchange Format. It is most common image format used after JPEG. It have the extension '.gif'. The GIF uses 2D raster datatype and is encoded in binary. GIF will never lose its data.

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→ PNG = PNG is a Portable Network Graphic. It is pronounced as Ping. It is a file format which is designed to provide no. of improvements over GIF.

→ SVG = This image format have .svg extension. It has a feature of format Scalability means file can be viewed on a computer display of any size & resolution whether its a small screen or a large wide screen.

→ IFF = Interchange File Format is used for exchanging raster graphic (bitmap). It is identified by .tiff or .tif extension. It was introduced by Electronic Art Company in 1985 to facilitate transfer of data between software of different companies.

Q4 = Explain the applications of image processing.

ans = Image processing is a method to perform some operations on image in order to extract useful information from it. It is a type of signal dispensation in which input is image, video etc & output may be characteristics associated with image or report that is based on image analysis. The application of image processing are-

- Medical field
- Remote sensing
- Intelligent Transportation system
- object tracking
- Defence Surveillance
- Faulty Component identification
- Transmission and encoding

Q5: Explain Remote Sensing.

ans: Remote sensing is the process of detecting and monitoring an area by measuring its reflected and emitted radiation at a distance. ~~the~~ Remotely Sensed images are collected which help researchers.

Sensors capture pictures of earth surface which mounted on an aircraft. These pictures are processed by transmitting it to the earth's station.

This technique used to interpret the object 4 regions are used in flood control, city planning, resource mobilization, agricultural production monitoring.

—x—x—x—