Class 8

ANSWER KEY

Touchpad PLAY Ver 2.0

1. Number System

A. 1. b 2. a 3. b 4. a 5. b

B. 1. T 2. F 3. T 4. T 5. T

C. 1. 0 2. 2 3. Decimal number
4. 10 5. 8 6. Binary

D. 1. The octal number system is used as a shorthand representation of long binary numbers.

2. 4 bits make 1 nibble.

3. Base of a number system represents the total number of digits in a number system.

E. 1. A Number System is simply a method of counting. There are many number systems in existence. The digital computer represents all kinds of data and information like audio, graphics, video, text and numbers in binary form. The total number of digits used in a number system is called its base or radix.

2. To convert a decimal number into a binary number, follow these steps:

Step 1 Divide the decimal number by 2 (the base of the binary number system).

Step 2 Note down the quotient and the remainder.

Step 3 Divide the quotient obtained again by 2 and note down the resulting quotient and remainder.

Step 4 Repeat the procedure till you reach a quotient less than 2.

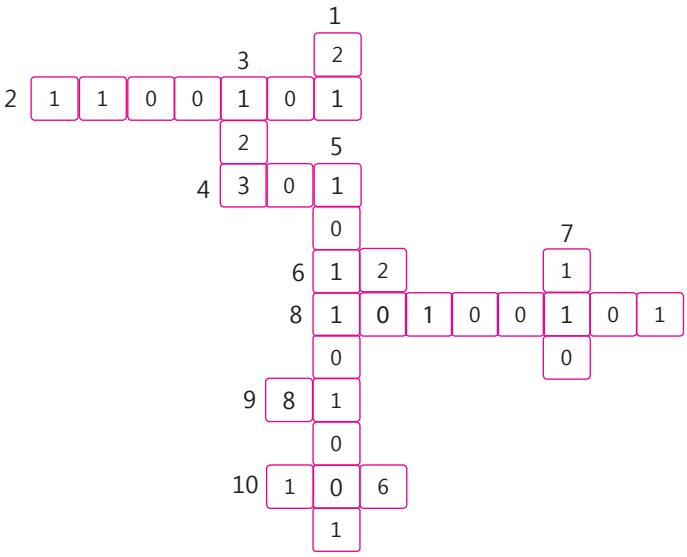
Step 5 List the last quotient and all the remainders (moving from bottom to top). You will get your binary number.

3. Binary subtraction rules to subtract two numbers are:

X	Y	X – Y
0	0	0 – 0 = 0
0	1	0 – 1 = 1 (borrow 1, so that 10 – 1 = 1)
1	0	1 – 0 = 1
1	1	1 – 1 = 0

IMPRINT 1

F.



G. $(256)_8$ → This number system belongs to octal number system.

$(2AF)_{16}$ → This number system belongs to hexadecimal number system.

He can tell by looking at the base of the number.

IN THE LAB

Do yourself.

2. Computer Networking

EXERCISE

A. 1. a 2. b 3. c 4. a

B. 1. T 2. T 3. T 4. T 5. T

C. 1. Protocol 2. SMTP 3. Router 4. Mesh 5. NIC

D. 1. The process of connecting computers and peripheral devices with each other, so that they can exchange data is called computer networking.

The components needed for a network are:

(i) Network Interface Card (NIC)

(ii) Hub or switch

(iii) Router

(iv) Modem

(v) Networking Cable (Ethernet Cable)

2. A client is a computer which depends on the server for all the resources.

   A server controls the access to the hardware and software on the network.

3. Topology refers to the geometric arrangement of computers or nodes in a network.

E. 1. Computer network means a system of interconnected computers which can communicate with each other.. The advantages of computer network are:

   (i) The information can be easily shared by the people.

   (ii) It helps in reducing the cost of hardware.

   (iii) Store information on one centralised location.

   (iv) Reliability implies backing up of information. If a system crashes, then the information is accessible on another workstation for future use.

   (v) Reduction in installation cost.

   (vi) User authentication process to secure the data.

2. LAN is a digital communication system that interconnects a larger number of computers and other peripheral devices within a radius of less than 1 km. MAN consists of two or more local area networks or campus area networks together that usually spans several buildings in the same city or town.

F. Ring Topology

IN THE LAB

Do yourself.

3. Windows— Photos and Video Editor

EXERCISE

A. 1. c 2. a 3. b 4. a 5. c

B. 1. T 2. T 3. F 4. F

C. 1. Red eye feature

2. Video editing means to add some new content in an existing video or delete unwanted portion or apply some effects to the video.

3. Yes, we can add 3D effects in a video using 3D effects button.

D. 1. Rotating means to change the position of a photo at different angles whereas flipping means to get the mirror image of the photo either horizontally or vertically.

2. Steps to trim a video in Photos app:

Step 1 Open a video and add it to the storyboard.

Step 2 Click on the Trim button.

Step 3 Two handles appear at both ends of a video timeline which allow you to trim a video from starting as well as from end.

Step 4 Click on the Done button. The video will be trimmed.

E. Rahul can use trim option to remove some portion of the video.

IN THE LAB

Do yourself.

Periodic Assessment 1

(Based on chapters 1 to 3)

A. 1. Local Area Network 2. Personal Area network
3. Star Topology 4. Mesh Topology

B. 1. video, storyboard
2. 3D effects
3. 3D effect, video
4. duration
5. Done

C. 1. c 2. e 3. b 4. a 5. d

4. Introduction to TUPI 2D

EXERCISE

A. 1. a 2. a 3. b 4. a 5. c

B. 1. F 2. T 3. T 4. T 5. T

C. 1. Animation is a way through which you can show characters and objects live.
2. Brushes tool is used to draw a closed rectangle, ellipse or a line.
3. Menu Bar, Modules Tab and Workspace

D. 1. To start TUPI 2D, follow these steps:

Step 1 Type TupiTube in the search box.

Step 2 Click on TupiTube Desk.

2. Object Selection tool helps the user to modify, flip or group objects as per their requirements whereas Node Selection tool helps to reorder the nodes which were created while drawing an object.

3. Steps to add an object to the Library panel:

Step 1 Click on the Library button.

Step 2 Click on + symbol to add an object in into the library. Import image dailog box will appear.

Step 3 Select the file and click Open button.

4. Type of files that can be added to the library are:

(i) Image File

(ii) Svg File

(iii) Native Object

(iv) Image Sequence

(v) Sound File

E. Sahil can use Fill Tool.

IN THE LAB

Do yourself.

5. Animations in TUPI 2D

EXERCISE

A. 1. c 2. a 3. b 4. c

B. 1. F 2. F 3. F 4. T

C. 1. Tween helps us to make animation process easier and faster.

2. Layers are like stack of transparent sheets that are used to work on the individual part of the image without affecting the other parts.

3. Coloring Tween changes the color from the beginning frame to the ending frame.

D. 1. We can insert the frames in TUPI 2D by following the given steps:

Step 1 Click on the Exposure Sheet.

Step 2 Click on Insert Frame button.

Step 3 A new frame will be inserted.

2. Steps to create opacity tween are:

Step 1 Draw a rectangle using a Brush tool.

Step 2 Click on Tween option and choose Opacity Tween.

Step 3 Enter a name for the animation and click on the + button.

Step 4 Click on the object and then click on Set Path Properties.

Step 5 Now set the properties as starting frame and ending frame. Set initial and ending opacity level and set iterations, loop.

Step 6 Click on the Save button to save the animation.

3. Rotation Tween is useful to rotate an object clockwise and anti-clock wise because the Rotation tween automatically rotates the object as per the specification given.

E. Shweta can rename a layer by double-clicking on it.

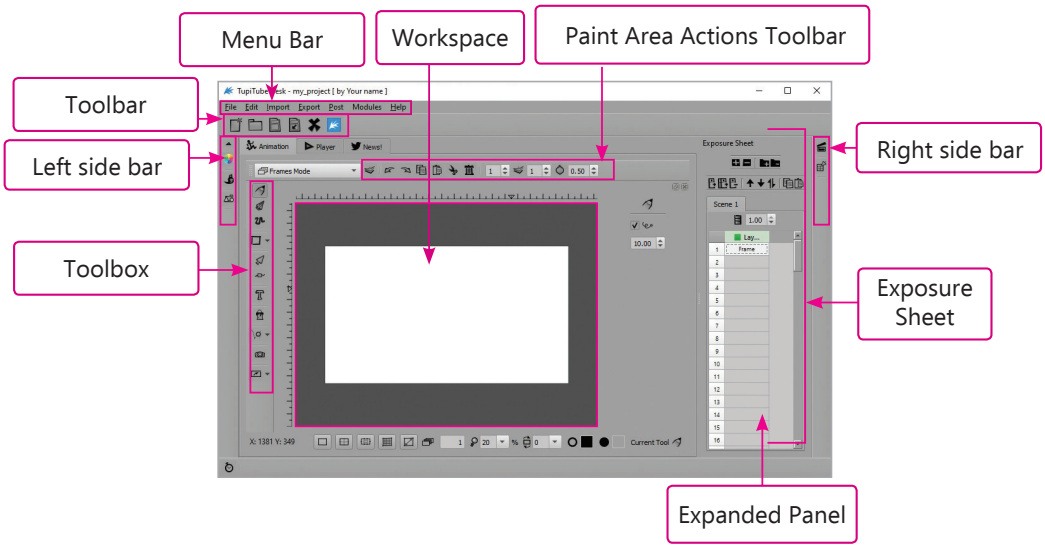
IN THE LAB

Do yourself.

Periodic Assessment 2

(Based on chapters 4 to 5)

A.



B. 1. Rotation Tween

2. Library

3. Clockwise

C. 1. Welcome screen
2. Expanded Panel
3. Color Palette

Test Sheet 1

(Based on chapters 1 to 5)

Section A

A. 1. (ii) 2. (i) 3. (i) 4. (ii) 5. (i)
6. (iii) 7. (ii) 8. (i) 9. (iii) 10. (ii)

B. 1. T 2. T 3. T 4. F 5. T
6. T 7. T

C. 1. Protocol 2. Mesh 3. NIC 4. Rotating 5. Player

6. (This question was printed incorrectly in the book, please correct it in your textbook)
Q. _____ is a protocol used to send e-mail messages over the internet.
Ans. SMTP

7. decimal number 8. 10

Section B

A. 1. The components needed for a network are:
(i) Network Interface Card (NIC)
(ii) Hub or switch
(iii) Router
(iv) Modem
(v) Networking Cable (Ethernet Cable)

2. Red eye feature

3. (This question was printed incorrectly in the book, please correct it in your textbook)
Q. What is Animation?
Ans. Animation is a way through which you can show characters and objects live.

4. Tween helps us to make animation process easier and faster.

5. Brushes tool is used to draw a closed rectangle, ellipse or a line.

6. The octal number system is used as a shorthand representation of long binary numbers.

B. 1. LAN is a digital communication system that interconnects a larger number of computers and other peripheral devices within a radius of less than 1 km. MAN consists of two or more local area networks or campus area networks together that usually spans several buildings in the same city or town.

2. Rotating means to change the position of a photo at different angles whereas flipping means to get the mirror image of the photo either horizontally or vertically.

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   Step 1 Click on the Exposure Sheet.

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   Step 1 Click on the Library button.

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5. Type of files that can be added to the library are:

   (i) Image File (ii) Svg File

   (iii) Native Object (iv) Image Sequence

   (v) Sound File

6. A Number System is simply a method of counting. There are many number systems in existence.

   The digital computer represents all kinds of data and information like audio, graphics, video, text and numbers in binary form. The total number of digits used in a number system is called its base or radix.

6. Latest Technological Developments

EXERCISE

A. 1. (The option of this question was printed incorrectly in the book, please correct it in your textbook)

Q. ..... is not an area of application of AI.

a. Pattern Recognition b. Natural Language Processing

c. 3D Printing d. Robotics

Ans. c

2. b 3. a 4. a 5. b

B. 1. Augmented Reality 2. RPA 3. Shakey
4. Virtual 5. RP

C. 1. F 2. T 3. F 4. T 5. F

D. 1. AI is the branch of computer science that aims at creating expert and intelligent computer systems which simulate certain human qualities such as, learning, reasoning, communicating, seeing, hearing, and sensation.

2. Pattern Recognition software comprises of a camera and software which together identify repetitive patterns and establish connections between the patterns stored in the database and the perceived patterns. Facial recognition software, video surveillance cameras, fingerprint identification and automatic voice recognition software are some examples of pattern recognition software.

3. Rapid prototyping is used to create models to quickly test a new product before mass production. 3D Printing can be termed as a RP method.

4. RPA (Robotic Process Automation) refers to the process of automating certain tasks in an industry through the use of robots. The purpose of RPA is to transfer the execution of the process from humans to robots. Robotic automation uses the existing IT structure without using any complex system integrations.

5. Intelligent Apps are software written for mobile devices based on artificial intelligence and machine learning technology, aimed at making everyday tasks easier.

E. 1. a. Blockchain refers to the system of recording information which makes it difficult or impossible to change, hack, or cheat the system.

b. Natural Language processing is the study of methods by which computers can recognize and understand spoken or written human language. Speech recognition software is an example of NLP where computers translate spoken speech into text.

c. Augmented Reality is the blending of Virtual Reality and real life. AR is using technology to superimpose information such as sounds, images and text on the real world that we can see. Images are created by developers within applications that blend in with content in the real world. AR users can interact with virtual content in the real world and can also distinguish between virtual and real content.

d. Virtual Reality refers to a virtual world that the user can interact with. While in VR, the user cannot easily distinguish between what is real and what is virtual. VR provides a total immersive experience to the user. These technologies find the greatest use in entertainment, sports/gaming, close interactive eye to eye communication and aided shopping experiences. Some examples are Oculus Rift and Google cardboard.

2. Applications of AR are:

a. SixthSense device b. Google Glass
c. Star Walk d. Coloring book

Applications of VR are:

a. Oculus Rift b. VR in education
c. VR in medical

3. Internet of Things is a system of connected computing devices, mechanical and digital machines for creating a virtual network where a monitoring center ensures that everything is working smoothly.

   Each connected device has a unique identifier and can transfer data over the network without any human intervention. The connected devices gather and share data about their usage and their operative environment. The devices can be your smartphones, refrigerators, televisions, washing machines, etc.

4. The applications of 3D Printing are:

   a. Education
   b. Rapid Prototyping (RP) Method
   c. Medicines
   d. Construction
   e. Art and Jewelry

5. AR stands for Augmented Reality, in this technology virtual objects are created and visualized alongside with real life objects. Whereas VR or Virtual Reality is completely virtual yet it feels real. While using the AR tech, you can partially see the real world, whereas the VR tech completely cuts you off from the real world. It takes you to a virtual world where everything is just a simulation.

F.

K	J	I	P	R	T	I	G	V	D	A	V	X	Z
F	G	K	R	D	F	U	P	B	C	D	S	K	Z
R	O	B	O	T	I	C	S	J	H	F	G	S	F
D	F	S	S	T	A	R	W	A	L	K	W	R	E
G	D	C	P	G	F	F	R	R	T	R	W	H	F
C	Z	C	E	F	D	H	D	E	Y	D	S	G	D
H	J	K	C	K	L	H	G	S	H	J	L	T	E
V	I	R	T	U	A	L	R	E	A	L	I	T	Y
G	G	O	O	G	L	E	G	L	A	S	S	E	W
F	D	S	R	A	S	D	F	H	W	E	R	F	S

G. Pattern Recognition

IN THE LAB

Do yourself.

7. Images, Links and Frames in HTML5

EXERCISE

A. 1. b 2. c 3. d 4. b 5. a

B. 1. F 2. F 3. F 4. T 5. T

C. 1. internal link 2. <A> 3. SELECT 4. <FRAMESET> 5. INPUT

D. 1. HREF stands for Hypertext Reference.

2. ALINK attribute is used to set the color of the active link.

3. Frames are the different sections or parts of a web page.

4. BORDER specifies the thickness of the border surrounding the image.

E. 1. a. This attribute is used to specify the action that will take place when we submit the form values. It takes the URL of another web page or an e-mail address to receive the information.

b. It specifies the type of method form will use to accept the values entered into form fields. The most commonly used values for this attribute are POST and GET.

c. This attribute is used to specify the type of field we want to create. It takes one of the predefined values.

2. Two attributes used with the <IMG> tag are:

a. SRC attributes: It specifies the source or URL of the image that has to be inserted in the web page. For example, <IMG SRC="C:/Mydocuments/lily.jpg">

b. ALIGN attribute: It aligns the image with respect to the text placed adjacent to the image. Image can be aligned left, right, middle, bottom and top. For example,

<IMG SRC="lily.jpg" ALIGN="right">

3. (This question was printed incorrectly in the book, please correct it in your text book.)

Q. Describe all the attributes of the <iFRAME> tag.

Ans. The attributes of the <iFRAME> tag are:

a. **SRC:** It is used to specify the URL of the web page which you want to display in the frame.

b. **HEIGHT:** It is used to specify the height of the frame.

c. **WIDTH:** It is used to specify the width of the frame.

d. **NAME:** It is used to specify the name of the frame. This name can be used in the TARGET attribute of the <A> tag.

4.
```
<!DOCTYPE HTML>
<HTML>
<HEAD>
<TITLE> Audio </TITLE>
</HEAD>
<BODY>
<H1 ALIGN = "CENTER"> <FONT COLOR = "Red">
Welcome to the Musical World </FONT></H1>
```

```
<P ALIGN = "CENTER">
<IMG SRC = "D:\MusicalNote.Jpg">
</P>
<AUDIO SRC = "D:\flute.mp3" AUTOPLAY CONTROLS>
</AUDIO>
</BODY>
</HTML>
```

F. 1. <FRAMESET> tag 2. <IMG> tag

IN THE LAB

Do yourself.

8. Computer Safety and Security

EXERCISE

A. 1. c 2. b 3. b

B. 1. Malware 2. Biometric 3. Decryption 4. Encryption 5. Zombie

C. 1. Authentication is the process of verifying a user's identity before granting him or her access to a computer system. Types of authentication are: Password Protection, Biometric Authentication,etc.

2. Trojan horse is a type of malware. It conceals itself inside the software that seems legitimate.

3. An antivirus program is used to detect the presence of a virus on a computer and remove the virus.

D. 1. To keep the computer physically fit, follow these:

a. Cleaning the keyboard

b. Cleaning the mouse

c. Cleaning the monitor

2. Malware is a malicious software. It refers to software programs designed to damage or carryout other unwanted actions on a computer system. In Spanish, 'mal' is a prefix that means 'bad,' making the term 'badware,' which is a good way to remember it.

The different types of malware are virus, worm, trojan horse, spyware, zombies, ramsomware, rootkit and backdoor.

3. A computer virus is a 'piece of code' or program developed to corrupt the data or program files stored on the computer system. It enters the computer without permission of the user. The user of the computer may not even realise that the computer is affected by a virus.

Whereas, A computer worm is a type of malware that has the capability to replicate itself without any human interaction. It consumes lots of memory space in replication. Once a computer has been infected by a worm, its processing speed gets slow-down, works unexpectedly and halts other tasks.

E. 1. Virus 2. Trojan Horse 2. Zombie

F. 1. Password protection.

2. His computer is infected by a virus. It can be resolved by installing antivirus software like McAfee.

IN THE LAB

Do yourself.

Periodic Assessment 3

(Based on chapters 6 to 8)

A. 1. Rootkit is a malware that gains administrator access to the host system. Once the attacker gains access to the system, the rootkit gets hidden but retains special access to the system.

2. Backdoor is a type of malicious software which enters into the computer through bundled with other software or files.

3. Firewall is a software or hardware-based network security system that controls the incoming and outgoing network traffic based on applied rule set.

B. 1. Augmented Reality

2. Virtual Reality

3. Global Positioning System

4. (This question was printed incorrectly in the book, please correct it in your textbook)

Q. HREF

Ans. Hypertext Reference

5. (This question was printed incorrectly in the book, please correct it in your textbook)

Q. IoT

Ans. Internet of Things

6. Internet Protocol

C.

```
<HTML>
<HEAD> <TITLE> Inserting Image </TITLE>
</HEAD>
<BODY>
<B> Inserting image on the web page </B>
```

```
<IMG SRC="lily.jpg" WIDTH="200px" HEIGHT="200px" ALIGN=”right”
BORDER="2">
</BODY>
</HTML>
```

9. Loops in Python

EXERCISE

A. 1. a 2. a 3. a 4. c

B. 1. One 2. Non-Zero, False 3. Infinite 4. Break, Continue

C. 1. T 2. F 3. T 4. T 5. T

D. 1. Looping refers to the process of repeating a set of statements repeatedly on the basis of a condition until the condition is falsified.

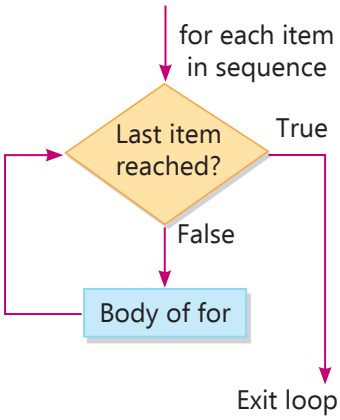
2. The syntax of for loop is:

for <variable> in <iterator>:

Statements

3. Jumping statements are used in Python when the control of the program needs to be transferred out of the loop body, even if all the values of the iterations of the loop have not been completed.

E. 1.

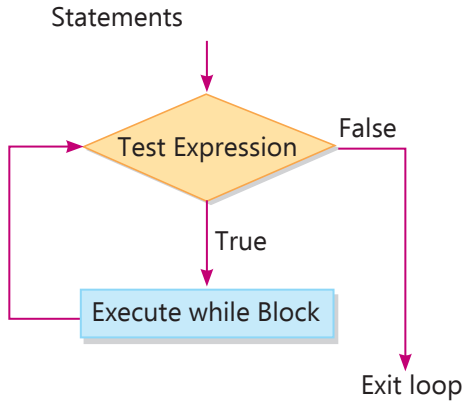


2. The while statement executes a set of statements repeatedly, until the logical expression evaluates to true. When the condition becomes false, the control comes out of the loop.

The syntax of while statement is given below:

Syntax:

while (test expression):



3. When a continue statement is encountered inside a loop, control of the program jumps to the beginning of the loop for next iteration, skipping the execution of rest of the statements of the loop whereas the break is a keyword in Python which is used for bringing the program control out of the loop.

F. 1. 55 2. $\frac{2}{4}$

G. Continue statement

IN THE LAB

Do yourself.

10. Domains of AI

EXERCISE

A. 1. c 2. a 3. b 4. a

B. 1. T 2. T 3. T 4. T 5. T

C. 1. Big Data allows AI systems to train on live data and provide valuable information.

2. This is a subfield of AI which helps in communication between human and computer in natural language. It enables a computer to read and understand data by mimicking human natural language.

3. Computer Vision is a very popular field of AI that trains a computer to understand and interpret the visual world.

D. 1. Two real life usages of NLP are:

a. NLP checks the sender of the email and categorises the mails as spam or junk.

b. NLP also finds its use in the auto complete and spell check feature of word processors.

2. Two advantages of AI are:

   a. **Quick Decision Making:** The speed at which humans take decisions is much slower than AI systems. Humans' reaction to situations is much slower whereas AI enabled systems can process information faster and are also structured way more efficiently.

   b. **Accuracy:** Human intelligence is not failure proof, but AI systems are. AI driven software can only be faulty due to human limitations or hardware failure. Therefore, AI is used in production lines to detect small cracks or defects in parts that are normally undetectable by the human eye.

3. Applications of computer vision are:

   a. Self-driving cars use computer vision to examine their surroundings and plan its path.

   b. Drones can use computer vision to examine the health of crops and alert the farmers of the crop's condition.

E. Computer Vision

IN THE LAB

Do yourself.

Periodic Assessment 4

(Based on chapters 9 & 10)

A. 1. Natural Language Processing 2. Computer Vision

3. Artificial intelligence

B. 1.
```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
    break
    else:
        print(0)
```
2.
```
i = 0
while i < 3:
    print (i)
    i += 1
else:
    print (0)
```

C.

```
i = 20
while (i > 0) :
    if (i % 2 != 0):
        print (i)
    i -= 1
```

Test Sheet 2

(Based on chapters 6 to 10)

Section A

A. 1. (ii) 2. (iii) 3. (iii) 4. (ii) 5. (i)
6. (i) 7. (iii) 8. (i)

B. 1. F 2. F 3. T 4. T 5. T
6. T 7. T 8. T

C. 1. Internal link 2. <A> 3. Decryption 4. Encryption 5. Infinite
6. RPA

Section B

A. 1. HREF stands for Hypertext Reference.

2. Authentication is the process of verifying a user's identity before granting him or her access to a computer system. Types of authentication are: Password Protection, Biometric Authentication, etc.

3. Jumping statements are used in Python when the control of the program needs to be transferred out of the loop body, even if all the values of the iterations of the loop have not been completed.

4. Computer Vision is a very popular field of AI that trains a computer to understand and interpret the visual world.

5. An antivirus program is used to detect the presence of a virus on a computer and remove the virus.

6. Border specifies the thickness of the border surrounding the image.

B. 1. Two attributes used with the <IMG> tag are:

a. SRC attributes: It specifies the source or URL of the image that has to be inserted in the web page. For example, <IMG SRC="C:/Mydocuments/lily.jpg">

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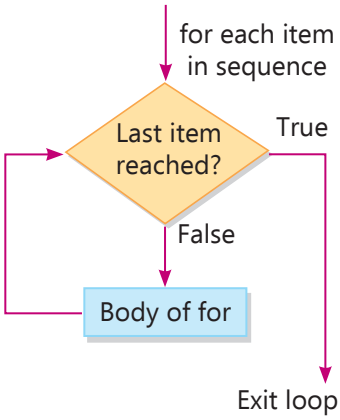

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   a. Self-driving cars use computer vision to examine their surroundings and plan its path.

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