Class 8

ANSWER KEY

Touchpad PLUS Ver 2.1

1. Computer Networking

Let's Plug-in (Page no. 7)

1. Telephone 2. Social Media 3. Letter 4. Telegram

Let's Catch Up (Page no. 11)

1. Server 2. Internet 3. ISP 4. URL

Let's Catch Up (Page no. 16)

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

Let's Catch Up (Page no. 18)

1. HTTPS- Hypertext Transfer Protocol Secure
2. IMAP- Internet Message Access Protocol
3. FTP- File Transfer Protocol
4. TCP/IP- Transmission Control Protocol/Internet Protocol

Test Your Skills

1.	a. (i)	b. (ii)	c. (iii)	d. (i)	e. (i)
2.	a. protocol	b. SMTP	c. router	d. mesh	e. NIC
3.	a. F	b. T	c. T	d. T	e. T

4. a. Protocol is a set of rules that governs the communication between the computers over a network.
   b. A client is a computer which depends on the server for all the resources. A server is also called as the host computer. A server controls the access to the hardware and software on the network.
   c. Topology refers to the geometric arrangement of computers or nodes in a network.
   d. A gateway is a network device that allows data to flow between two different networks which may use different protocols.

IMPRINT 1

5. a. The computer network means a system of interconnected computers and other computing devices. 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.

(vii) People will have the accessibility to all the information they need to get and share through e-mails

b. 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.

c. Web page is a single digital page on the World Wide Web (WWW) that contains information and links of another pages. Web pages are created by using the Hyper Text Markup Language (HTML), whereas website is a collection of web pages which are interlinked to each other. A website may contain thousands of web pages.

Fun Zone

Let's Solve

1. a. Ring Topology b. Network Server

2.

	1		2						
	B		N						
3	C	L	I	E	N	T		4	
	U		T					S	
	E		W		5			T	
	T		O		H			A	
	O	6	R	O	U	T	E	R	
	O		K		B				
	T				8				
7	H	T	T	P					
				2					
				P					

Let's Explore

Do it yourself.

Tech Practice

Do it yourself.

2. Introduction to Adobe Photoshop CC

Let's Plug-in (Page no. 22)

Do it yourself.

Let's Catch Up (Page no. 31)

1. Rectangular Marquee Tool
2. Elliptical Marquee Tool
3. Lasso Tool
4. Polygonal Lasso Tool

Test Your Skills

1. a. (ii) b. (iii) c. (iv) d. (ii) e. (i)
2. a. advanced b. tiny dots c. .psd d. began
   e. Application
3. a. F b. T c. T d. F e. T
4. a. Pixels are the short for Picture Element. The computer screen comprises of tiny little dots. These tiny dots are known as pixels.
   b. The Paint Bucket Tool in Photoshop fills adjacent pixels that are similar in color in the image. It fills with either the selected foreground color or with a pattern.
   c. Rasterizing means the text will be converted into pixels, allowing you to make image adjustments that normally do not work with text layer. Rasterize is the process of converting a vector image to a raster image.
   d. Layers panel contains all the layers present in the Photoshop document. Whenever you add an image into a Photoshop document, a new layer is created.
   e. A layer can be defined as one image stacked on top of another to form a complete image.
5. a. Selection tools are used to select certain areas of the image to work without affecting the unselected areas. Some of the Selection tools are Rectangular Marquee Tool, Elliptical Marquee Tool and Lasso Tool.

b. Some of the blending brush combinations of the Mixer brush are Dry, Moist, Wet, Very Wet, etc. Follow the below steps to use the Mixer Brush Tool:
Step 1: Open a new document and select the Mixer Brush Tool from the Tools panel.
Step 2: Select the desired brush from the Brush Presets Picker in the Options bar.
Step 3: To sample a color either you can click on the Current brush load from the Options bar and select the desired color or press Alt key and click from where you wish to sample color in the current image.
Step 4: Set various options in the Options bar according to your preferences. Specifying the percentages of Wet, Load, Mix and Flow effects the outcome on the canvas.
Step 5: Click and drag the mouse on image to paint.

c. Slice Tool divides an image or layout into smaller sections called slices which can be exported and developed separately. This is mainly used for web publications. These small slices can be saved as a separate file and can be modified using the Save for Web command. The slices created manually are called user-slices. As we create user-slices, Photoshop automatically divides the rest of the area.

d. Quick Selection Tool makes a selection based on the color and contrast of the same color in the image that you wish to select. It remembers all the consecutive strokes. This way you can make different selections in a single image also. Quick selection tool is used to select a bigger area to work whereas the magic wand tool is used to work with a specific area. Hence Magic wand tool is better that the quick selection tool.

6. a. Background/Foreground b. Horizontal Type tool
   c. Move tool

Fun Zone

Let's Solve

1. a. Gradient Tool b. Color Replacement Tool c. Crop Tool
2. a. Vertical Type Tool b. Gradient Tool c. Color Replacement Tool
   d. Lasso Tool e. Crop Tool

Let's Explore

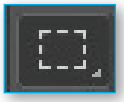
Do it yourself.

Tech Practice

Do it yourself.

3. More on Adobe Photoshop CC

Let's Plug-in (Page no. 45)



Rectangular Marquee Tool

Quick Selection Tool

Crop Tool

Slice Tool

Let's Catch Up (Page no. 57)

1. Hand Tool
2. Rotate View Tool
3. Zoom Tool
4. Rectangle Tool
5. Ellipse Tool
4. Line Tool

Test Your Skills

1. a. (iii) b. (ii) c. (ii) d. (i)
2. a. Background b. Info c. Red Eye d. Sharpen
3. a. F b. F c. F d. T
4. a. 1. Delete a layer by clicking on the Delete layer button.
   2. Add a style to a layer by clicking on the Add a layer style button.

   b. A Ruler Tool is a handy tool that you can use to measure and draw outlines in any direction.

   c. Blur Tool makes the image hazy or softens the pixels of an image. It helps to highlight the main object in the image.
5. a. The various options of the Image menu are as follows:

   (i) **Adjustments:** It allows you to access various tools for changing the brightness, contrast, levels, exposure, vibrancy, hue/saturation, and color balance of an image.

   (ii) **Canvas Size:** It allows you to change the width and height of the whole working area according to your requirement.

   (iii) **Reveal All:** It expands the canvas as large as necessary to reveal full image when an image been moved beyond the canvas boundary.

   (iv) **Apply Image:** It allows you to apply a Blend Mode to the layer. It opens a dialog box with Source and Target tabs. From the Source tab, you can choose a layer on which blend modes will be applied. From the Target tab, you can select different blend modes to apply.

b. Spot Healing Brush Tool is also known as texture replacement tool because it blends the wrong or bad texture of one area in an image with the good or fine texture area of the same image. The result of the spot removal may vary depending on the complexity of the image. It can be used to remove the acne or skin blemishes and scars completely from an image.

c. Steps to draw a straight path segment are:

Step 1: Create a new document in Photoshop or open an existing image.

Step 2: Select the Pen Tool to from the Tools panel and set the mode of the Pen Tool to Path from the Options bar.

Step 3: Click on a point to start the path.

Step 4: Press the Shift key and click on the next point to draw a straight path.

Step 5: To close the shape, return to the first point and click once when the small circle appears.

Perform the below steps to draw a curved path segment:

Step 1: Click to create the second point and drag with the Pen Tool before you release the mouse button. You will see handles appear. These handles determine the acuteness of the curve and its direction.

Step 2: Click on the small square at the end of the handle line and drag the mouse around to adjust the handles.

Step 3: When you are satisfied with the shape of the curve, release the mouse button.

Fun Zone

Let's Solve

1. a. History Brush Tool b. Horizontal Type Tool
2. a. Layers Panel b. Eraser Tool c. Hand Tool d. Blur Tool
   e. Magic Wand Tool

Let's Explore

Do it yourself.

Tech Practice

Do it yourself.

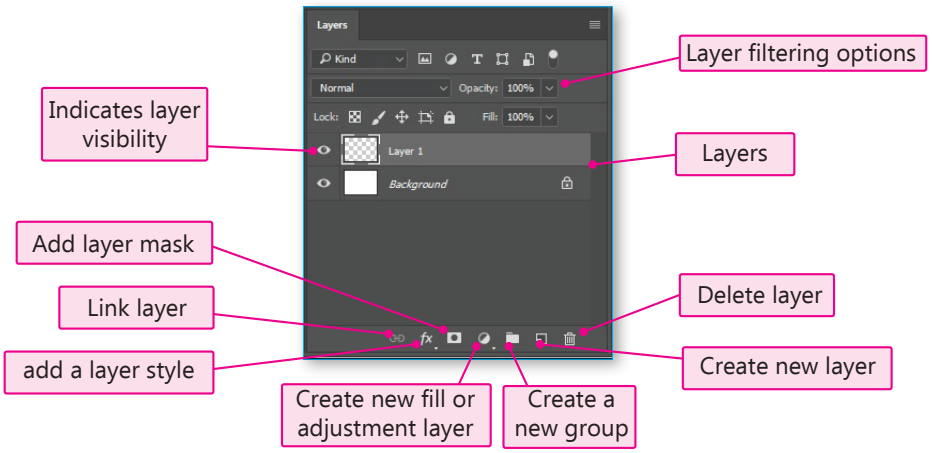
Periodic Assessment–1

(Based on chapters 1 to 3)

A. 1. Ring 2. Tree 3. Bus 4. Star

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

C.



4. Computer Safety and Security

Let's Plug-in (Page no. 63)

Do it yourself.

Let's Catch Up (Page no. 65)

1. Cleaning the keyboard
2. Cleaning the Mouse
3. Cleaning the Monitor

Let's Catch Up (Page no. 70)

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

Test Your Skills

1. a. (iii) b. (ii) c. (ii)
2. a. malware b. biometric c. decryption d. encryption e. zombie

3. a. 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.

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

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

4. a. 1. cleaning the keyboard
      2. cleaning the mouse
      3. cleaning the monitor

   b. 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.

   c. 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.

Fun Zone

Let's Solve

1. a. Virus b. Trojan c. zombie
2. a. Password protection.

   b. Take a backup of original data.

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

Let's Explore

Do it yourself.

Tech Practice

Do it yourself.

5. Google Apps

Let's Plug-in (Page no. 73)


Facebook


WhatsApp


Twitter


Instagram

Origin country for all these apps is USA.

Let's Catch Up (Page no. 77)

1. Gmail
2. Google Maps
3. Google Drive
4. YouTube

Let's Catch Up (Page no. 85)

Yes Google Slides are different from the MS PowerPoint. You need to have a license to use MS Powerpoint on any device, whereas you don't need any license to work on Google slides.

Test Your Skills

1. a. (iii) b. (i) c. (ii) d. (i) e. (iii)
2. a. Sundar Pichai b. encryption c. share d. Map, Satellite, Terrain
   e. saved
3. a. Google Drive is a cloud-based storage service. With Google Drive, multiple users can access a single file at the same time, at different locations and from different devices.
   b. Google Slides is an online version of Microsoft PowerPoint developed by Google in 2006.
   c. Google Maps is a digital navigation program that provides detailed information about the geographical regions of any particular area. Google Map was launched on February 8, 2005.
   d. Google mail or Gmail is one of the best and free mailing apps accessible through a web browser over the Internet.
   e. Google Docs is a free online word processing program. It is similar to Microsoft Word.
4. a. Follow the below steps to open Google Docs:
   Step 1: Click on the Google apps button.
   Step 2: Click on the Docs icon from the drop-down menu. The Start a new document page appears.
   Step 3: Click on the Blank template.
   b. Some of the features of YouTube are:
   (i) Users can search for any particular keyword and watch videos
   (ii) Create a personal YouTube channel.

(iii) Upload videos to your channel.

(iv) Like/Comment/share other YouTube videos.

(v) Users can subscribe/follow other YouTube channels and users.

c. YouTube is the most widely used video sharing application where users can upload their videos, share, comment, watch and like other videos.

Views on YouTube are: Do it yourself.

d. Google introduced Google Sheets, a spreadsheet application on March 9, 2006. It works like any other spreadsheet tool, but since it is an online app, it offers much more than just the spreadsheet tools.

Perform the following steps to share a spreadsheet:

Step 1: Click on the Share button from the top-right corner of the spreadsheet.

Step 2: Enter the email address(es) of the people with whom you want to share the spreadsheet in the box.

Step 3: Assign permission levels by clicking on the Settings button.

Step 4: Click on the status of the receiver.

Step 5: Type a message for the receiver in the Message box.

Step 6: Click on the Send button to share the file.

Perform the following steps to protect a spreadsheet:

Step 1: Select the Data → Protected sheets and ranges option from the menu bar. You can lock editing of some cells in a sheet or even a cell range in a sheet.

Step 2: Select the data you would like to protect or choose Range or Sheet, to protect an entire sheet.

Step 3: Click on Set permissions button.

Fun Zone

Let's Solve

1. a. View button
   b. Google Maps
2. a. Google Slides b. YouTube c. Google Sheets d. Broadcast yourself
   e. Google Docs f. Google Drive g. Gmail h. Map view
   i. Google

Let's Explore

Do it yourself.

Tech Practice

Do it yourself.

Periodic Assessment–2

(Based on chapters 4 & 5)

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. The detection of rootkit is difficult as having special access to the system, it bypasses the tracking software.

2. Backdoor: Backdoor is a type of malicious software which enters into the computer through bundled with other software or files. It is used to gain remote access to the host computer.

B. 1. THUMBS UP icon for 'Like' 2. Google Sheets

3. Google Maps 4. THUMBS DOWN icon for 'Not Like'

C. She can use Google Drive.

Test Sheet–1

(Based on chapters 1 to 5)

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

6. (iii) 7. (i)

B. 1. internal link 2. Eyedropper 3. began 4. Router 5. malware

6. biometric

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

D. 1. A Ruler Tool is a handy tool that you can use to measure and draw outlines in any direction.

2. There are mainly five components of a network which are as follows:
   - **Sender:** A sender is a computer that wants to send information to other computer connected to the network.
   - **Receiver:** A receiver is a computer which is expecting the data from other computer on the network.
   - **Transmission Medium:** A transmission medium is a communication channel through which information is transferred from one computer to another on a network.
   - **Message:** A message is the information or data which needs to be transferred from one computer to another.
   - **Protocol:** A protocol is a set of standard rules used for communication.

3. An Internet Protocol (IP) address is an unique identification number assigned to a computer connected to a network. It has two main functions: host or network interface identification and location addressing. IP addresses are written and displayed in human-readable notations, such as 172.16.254.1.

4. Authentication is the process of verifying a user's identity before granting him or her access to a computer system.

5. Google Docs is a free online word processing program. It is similar to Microsoft Word.

E. 1. **Adjustments:** It allows you to access various tools for changing the brightness, con-trast, levels, exposure, vibrance, hue/saturation, and color balance of an image.

Auto Tone: It automatically adjusts the black point and white point in an image.

Auto Contrast: It adjusts image contrast automatically.

Auto Color: It adjusts the contrast and color of an image.

2. A 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 span several buildings in the same city or town.

3. Some of the features of YouTube are:

(i) Users can search for any particular keyword and watch videos

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

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

Question: What is Google Sheets? How can you share and protect data in Google Sheet?

Ans. Google introduced Google Sheets, a spreadsheet application on March 9, 2006. It works like any other spreadsheet tool, but since it is an online app, it offers much more than just the spreadsheet tools.

Perform the following steps to share a spreadsheet:

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Step 1: Select the Data à Protected sheets and ranges option from the menu bar. You can lock editing of some cells in a sheet or even a cell range in a sheet.

Step 2: Select the data you would like to protect or choose Range or Sheet, to protect an entire sheet.

Step 3: Click on Set permissions button.

6. Latest Technological Developments

Let's Plug-in (Page no. 94)

1. TECHNOLOGY 2. INTELLIGENT

Let's Catch Up (Page no. 95)

1. Natural Language Processing
2. Intelligent agent 3. Pattern Recognition

Test Your Skills

1. a. (iii) b. (ii) c. (i) d. (i) e. (ii)
2. a. Augmented Reality b. RPA c. Shakey d. Virtual e. RP
3. a. T b. T c. F d. T e. F
4. a. 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.

b. 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.

c. 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.

d. 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.

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

5. a. (i) Expert system can be defined as a communicating computer program that can solve problems which would otherwise require human assistance. These programs replicate the reasoning process of experts in certain areas. For example, PROSPECTOR

(ii) 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.

(iii) Intelligent agent is a type of computer program that has built-in intelligence which keeps a check on the work patterns, asks questions and performs tasks on the behalf of the user. The simplest example of intelligent agents is surfing the Internet.

(iv) 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.

(v) 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.

b. Applications of AR are:

1. SixthSense device
2. Google Glass
3. Star Walk
4. Coloring book

Applications of VR are:

1. Oculus Rift
2. VR in education
3. VR in medical

c. It 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.

d. The applications of 3D Printing are:

1. Education
2. Rapid Prototyping (RP) Method
3. Medicines
4. Construction
5. Art and Jewelry

e. 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.

Fun Zone

Let's Solve

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

Let's Explore

Do it yourself.

Tech Practice

Do it yourself.

7. Images, Links and Frames in HTML5

Let's Plug-in (Page no. 105)

Do it yourself.

Let's Catch Up (Page no. 123)

A hyperlink is generally an underlined text which takes you to another web page when clicked. Generally, hyperlinks are seen in blue colour.

Test Your Skills

1. a. (ii) b. (iii) c. (iv) d. (iii) e. (i)
2. a. F b. F c. F d. T e. T
3. a. internal link b. <A> c. SELECT d. <FRAMESET> e. INPUT
4. a. HREF stands for Hypertext Reference.
   b. ALINK attribute is used to set the color of the active link.
   c. Frames are the different sections or parts of a web page.
   d. BORDER specifies the thickness of the border surrounding the image.
5. a. (i) 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.
   (ii) 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.
   (iii) This attribute is used to specify the type of field we want to create. It takes one of the predefined values.
   b. 1. 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">
   2. 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">
   c. The attributes of the <FRAME> tag are:
   (i) FRAMEBORDER: This attribute is used to define whether a border is to be created around the frame or not.
   (ii) NORESIZE: This attribute is used to restrict the user to resize the frame on the web page.
   (iii) SRC: This attribute is used to define the URL or path of the web page which is to be linked to the frame.
   d.
```
<!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>
```

Fun Zone

Let's Solve

1. a. <FRAMESET> tag b. <IMG> tag

Tech Practice

Do it yourself.

Periodic Assessment–3

(Based on chapters 6 & 7)

A.
1. 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.
2. In Virtual Reality, we create a virtual world that users can interact with. In this world, the user cannot easily distinguish between what is real and what is virtual.
3. RPA or Robotic Process Automation allows organizations to automate tasks which human beings were doing across any applications and systems.
4. Internet of Things (IoT) has become a buzzword nowadays throughout the world. It 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.

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

2. **CHECKBOX:** This value is used to create a check box control. A check box control allows us to select multiple options from a set of options

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

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>
```

8. Loops in Python

Let's Plug-in (Page no. 128)

1. F 2. T 3. T

Let's Catch Up (Page no. 135)

Hello Touchpad

An infinite loop is created with the above message

Test Your Skills

1. a. (ii)
   b. (This question was printed incorrectly in the book, please correct this question in your textbook)
   Question: Which of the following is a conditional statement in Python?
   (i) for statement (ii) while statement
   (iii) if statement (iv) break statement
   Ans. (iii)

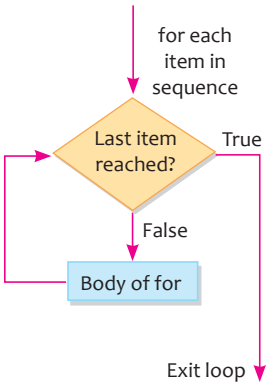
   c. (i) d. (iii)

2. a. while b. Non-zero, false c. infinite d. break, continue

3. a. F b. F c. T d. T e. T

4. a. Looping refers to the process of repeating a set of statements repeatedly on the basis of a condition until the condition is falsified.
   b. The syntax of for loop is
   for <variable> in <iterator>:
   Statements
   c. There is a situation 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. For this purpose, jumping statements are used in Python.

5 a.

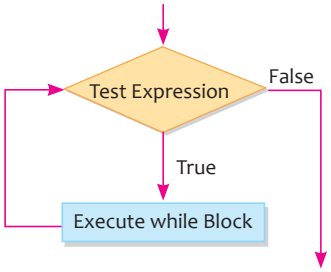


b. The while statement executes a set of statements repeatedly, until the logical expression evaluates to true. When the condition becomes false, the control comes out of the loop. The syntax of while statement is given below.

Syntax:

while (test expression):

Statements



c. The break is a keyword in Python which is used for bringing the program control out of the loop. 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.

Fun Zone

Let's Solve

1. 55
2. apple
   banana
   cherry
3. 2
   4
4. 0

0
1
0
2

5. 0
1
2
0

Let's Explore

Do it yourself.

Tech Practice

1.
```
num = int(input("Enter a number: "))
sum = 0
temp = num
while temp > 0:
  digit = temp % 10
  sum += digit ** 3
  temp //= 10
if num == sum:
  print(num,"is an Armstrong number")
else:
  print(num,"is not an Armstrong number")
```

2.
```
i = 0
for i in range(8, 90, 3):
   print(i)
```

3.
```
i = 0
for i in range(100, 1, -2):
   print(i)
```

4.
```
i = 0
while ( i <= 100):
   i = i+1
   print(i)
```

5.
```
i = 0
a = 0
```

```
while ( i < 100):
    i += 1
    a = i+a
print(a)
```

6. Using While loop

```
i = 0
a = 0
b = 0
while ( i < 10):
    a = a + 2
    b = b + a
    i = i + 1
print(b)
```

Using For loop

```
a = 0
for i in range(1, 11):
    a = a + i
print(a)
```

7.
```
i = 0
a = 1
b = 0
while(i < 20):
    a = a + 2
    i = i + 1
    b = b + a
print(b)
```

9. Functions and String in Python

LET'S PLUG-IN (Page no. 140)

```
sum = 0
i = 1
while(i<6):
    sum += i
    i += 1
print("The sum of the first five natural numbers is: ", sum)
```

Let's Catch Up (Page no. 147)

1. A sequence of characters which is enclosed or surrounded by single (' ') or double (" ") quotes is known as a string.
2. An escape sequence is a sequence of characters that does not represent itself when used inside a character or string. It is typically used to specify actions such as carriage returns and tab movements.

Test Your Skills

1. a. (i) b. (iii) c. (ii) d. (i) e. (ii)
2. a. append b. Function c. lower d. string
3. a A function can be defined as a block of a reusable code that performs a specific task. Functions help us to break our program into smaller pieces or modules.

   b. A sequence of characters which is enclosed or surrounded by single (' ') or double (" ") quotes is known as a string. The sequence may include a letter, number, special characters or a backslash. Python treats single quotes as double quotes

   c. Two features of functions are:

      1. A program is divided into small modules and each module performs some specific task. Each module can be called as per the requirement.
      2. We can call a function as many times as required. This saves the programmer the time and effort to rewrite the same code again. Therefore, it also reduces the length of the program.

4. a. A Python function consists of the following components:

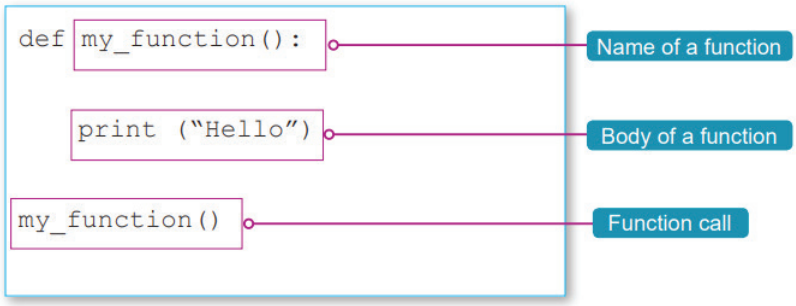
   Name of the function: A function name should be unique and easy to correlate with the task it will perform. We can have functions of the same name with different parameters.

   Arguments: The input given to the functions are referred to as arguments. A function can or cannot have any arguments.

   Statements: The statements are the executable instructions that the function can perform.

   Return Value: A function may or may not return a value.

   b. A function can be called anytime from other functions or from the command prompt after the definition. For calling a function, we type the function and pass the parameters. For example:



c. **Built-In Functions:** The print() and input() belong to the category of built-in functions. We also have other built-in functions like range(), type(), etc. The main difference between these two categories is that built-in functions do not require to be written by us whereas a user-defined function has to be developed by the user at the time of writing a program.

User-Defined Functions: User-defined functions are created by the user according to the need of the program. Once the user defines a function, the user can call it in the same way as the built-in functions. User-defined functions are divided into various categories based on the parameters and return type.

d. Two built-in functions to manipulate strings:

1. len(): The len() function calculates and returns the length of a string supplied as an argument.

   Syntax of using len() function is:

   len(string_name)

2. lower(): The lower() function converts all uppercase letters to lowercase. Syntax of using lower() function is:

   string_name.lower()

Fun Zone

Let's Solve

1. The original string is : Good Morning
   The resultant string : GOOD MORNING
2. 5 has occurred 2 times.

10. Domains of AI

Let's Plug-in (Page no. 152)

Do it yourself.

Let's Catch Up (Page no. 153)

Natural language processing and Big Data

Test Your Skills

1. a. (iii) b. (i) c. (ii) d. (i)
2. a. T b. T c. T d. T e. T

3. a. Big Data allows AI systems to train on live data and provide valuable information.
   b. 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.
   c. Computer Vision is a very popular field of AI that trains a computer to understand and interpret the visual world.
4. a. Two real life usages of NLP are:
      1. NLP checks the sender of the email and categorises the mails as spam or junk.
      2. NLP also finds its use in the auto complete and spell check feature of word processors.
   b. Two advantages of AI are:
      1. **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.
      2. **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.
   c. Applications of computer vision are:
      1. Self-driving cars use computer vision to examine their surroundings and plan its path.
      2. Drones can use computer vision to examine the health of crops and alert the farmers of the crop's condition.

Fun Zone

Let's Solve

Do it yourself.

Periodic Assessment–4

(Based on chapters 8 to 10)

A.
```
num = 407
if num > 1:
# check for factors
for i in range(2,num):
if (num % i) == 0:
print(num,"is not a prime number")
```

```
print(i,"times",num//i,"is",num)
break
else:
print(num,"is a prime number")
# if input number is less than
# or equal to 1, it is not prime
else:
print(num,"is not a prime number")
```

B.

```
num = int(input("Enter a number: "))
factorial = 1
if num < 0:
print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
print("The factorial of 0 is 1")
else:
for i in range(1,num + 1):
factorial = factorial*i
print("The factorial of",num,"is",factorial)
```

C.

1. 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.
2. Computer Vision is a very popular field of AI that trains a computer to understand and interpret the visual world.
3. Artificial Intelligence (AI) is the part of computer science concerned with designing intelligent computer systems, that is, systems that exhibit characteristics we associate with intelligence in human behaviour—understanding language, learning, reasoning, solving problems, and so on.

D.

1. Big Data allows AI systems to train on live data and provide valuable information.
2. A function can be defined as a block of a reusable code that performs a specific task. Functions help us to break our program into smaller pieces or modules.
3. There is a situation 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. For this purpose, jumping statements are used in Python. Python offers two jumping statements—break and continue, which are used within the loop.

Test Sheet–2

(Based on chapters 6 to 10)

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

B. 1. in-built 2. break, continue 3. Augmented Reality 4. AI
5. human intelligence 6 <FRAMESET> 7. href

C. 1. F 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. Authentication is the process of verifying a user's identity before granting him or her access to a computer system.

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.

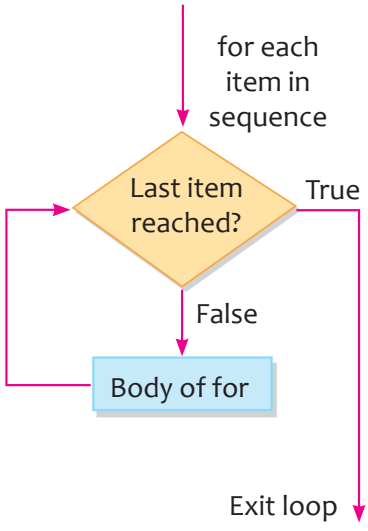
4. HREF stands for Hypertext Reference.

5. The definition list is also known as description list. The description list is created by using the <DL> tag in conjunction with <DD> and <DT> tags. The <DL> tag defines the entire description list. The <DT> tag defines the description term. The <DD> tag defines the description term's definition.

E. 1. 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.

A lightbulb that can be switched on using a smartphone app, a motion sensor or a smart thermostat in your office or a connected streetlight are examples of IoT devices.

2.



3. **By using while loop:**

```
limit = int(input(" Please Enter the limit Value : "))
Sum = 0
N = 1
while N <= limit:
    if(N % 2 == 0):
        print(N)
        Sum = Sum + N
    N = N + 1
print("The Sum of Even Numbers from 1 to", limit, "is: ",Sum)
```

By using for loop:

```
Sum = 0
limit = int(input(" Enter the last number of the range : "))
for even in range(1, limit+1):
    if(even % 2 == 0):
        print(even)
        Sum  = Sum + even
print("The Sum of the even numbers till", limit, "is: ", Sum)
```

4. <A HREF = "Display.html"> Display </A>
5. AI is divided into 3 domians Natural Language Processing (NLP), Big Data, Computer Vision.
   - **Natural Language Processing:** NLP is focussed towards the communication between human and machine through the naturally spoken language.
   - **Big Data:** Big Data allows AI systems to train on live data and provide valuable informtion.
   - **Computer vision:** Computer vision works like human vision as it helps AI systems to gather and process information through camera sensors.