Class 7

ANSWER KEY

Thinkcode Ver 1.0

1. Number System

Exercise

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

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

C. 1. 0 2. 2 3. decimal number 4. 10
5. 8 6. binary

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

2. Group of 8 binary digits either 0 or 1 is called a byte.

E. 1. A number system is simply a method of counting. There are 4 types of number systems in computer such as binary number system, decimal number system, octal number system, and hexadecimal number system.

2. To convert a decimal number into a binary number:

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 have your binary number.

3. The rules to multiply two binary numbers are:

X	Y	X × Y
0	0	0 × 0 = 0
0	1	0 × 1 = 0
1	0	1 × 0 = 0
1	1	1 × 1 = 1

IMPRINT 1

F. 1. $(10111.011)_2 = 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0 + 0 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-3}$

$= 1 \times 16 + 0 + 1 \times 4 + 1 \times 2 + 1 \times 1 + 0 + 1/4 + 1/8$

$= 16 + 4 + 2 + 1 + 0.25 + 0.125$

$= (23.375)_{10}$

2.

	(0)	(10)	(10)			(10) ← Borrow
	1	0	0	1	1	0
–			1	1	0	1
	1	1	0	0	1	

3. (a)

	1	0	0	0
+		1	0	1
	1	1	0	1

(b)

	(1)	(1)	(1)	← Carry	
	1	0	1	1	
+		1	0	1	
	1	0	0	0	0

(c)

		(1)	← Carry		
	1	0	0	1	
+		1	0	1	
	1	1	1	0	

(d)

	(1)	(1)	(1)	← Carry	
	1	1	1	1	
+	1	1	1	1	
1	1	1	1	0	

(e)

		(1)	← Carry			
	1	1	0	0	1	
+	1	0	1	0	1	
1	0	1	1	1	0	

4. (a)

2	168 – 0
2	84 – 0
2	42 – 0
2	21 – 1
2	10 – 0
2	5 – 1
2	2 – 0
	1

Hence, $(168)_{10} = (10101000)_2$

(b)

2	356 – 0
2	178 – 0
2	89 – 1
2	44 – 0
2	22 – 0
2	11 – 1
2	5 – 1
2	2 – 0
	1

Hence, $(356)_{10} = (101100100)_2$

(c)

2	869 – 1
2	434 – 0
2	217 – 1
2	108 – 0
2	54 – 0
2	27 – 1
2	13 – 1
2	6 – 0
2	3 – 1
	1

Hence, $(869)_{10} = (1101100101)_2$

(d)

2	1142 – 0
2	571 – 1
2	285 – 1
2	142 – 0
2	71 – 1
2	35 – 1
2	17 – 1
2	8 – 0
2	4 – 0
2	2 – 0
	1

Hence, $(1142)_{10} = (10001110110)_2$

5. (a) $(1111001)_2 = (121)_{10}$

Step 1: Write down the binary number:

1111001

Step 2: Multiply each digit of the binary number by the corresponding power of two:

$1x2^6 + 1x2^5 + 1x2^4 + 1x2^3 + 0x2^2 + 0x2^1 + 1x2^0$

Step 3: Solve the powers:

1x64 + 1x32 + 1x16 + 1x8 + 0x4 + 0x2 + 1x1 = 64 + 32 + 16 + 8 + 0 + 0 + 1

Step 4: Add up the numbers written above:

64 + 32 + 16 + 8 + 0 + 0 + 1 = 121.

So, 121 is the decimal equivalent of the binary number 1111001.

(b) **Step 1:** Write down the binary number:

111011010

Step 2: Multiply each digit of the binary number by the corresponding power of two:

$1x2^8 + 1x2^7 + 1x2^6 + 0x2^5 + 1x2^4 + 1x2^3 + 0x2^2 + 1x2^1 + 0x2^0$

Step 3: Solve the powers:

1x256 + 1x128 + 1x64 + 0x32 + 1x16 + 1x8 + 0x4 + 1x2 + 0x1 = 256 + 128 + 64 + 0 + 16 + 8 + 0 + 2 + 0

Step 4: Add up the numbers written above:

256 + 128 + 64 + 0 + 16 + 8 + 0 + 2 + 0 = 474.

So, 474 is the decimal equivalent of the binary number 111011010.

(c) **Step 1:** Write down the binary number:

111010

Step 2: Multiply each digit of the binary number by the corresponding power of two:

$1x2^5 + 1x2^4 + 1x2^3 + 0x2^2 + 1x2^1 + 0x2^0$

Step 3: Solve the powers:

$1x32 + 1x16 + 1x8 + 0x4 + 1x2 + 0x1 = 32 + 16 + 8 + 0 + 2 + 0$

Step 4: Add up the numbers written above:

$32 + 16 + 8 + 0 + 2 + 0 = 58.$

So, 58 is the decimal equivalent of the binary number 111010.

(d) **Step 1:** Write down the binary number:

101101

Step 2: Multiply each digit of the binary number by the corresponding power of two:

$1x2^5 + 0x2^4 + 1x2^3 + 1x2^2 + 0x2^1 + 1x2^0$

Step 3: Solve the powers:

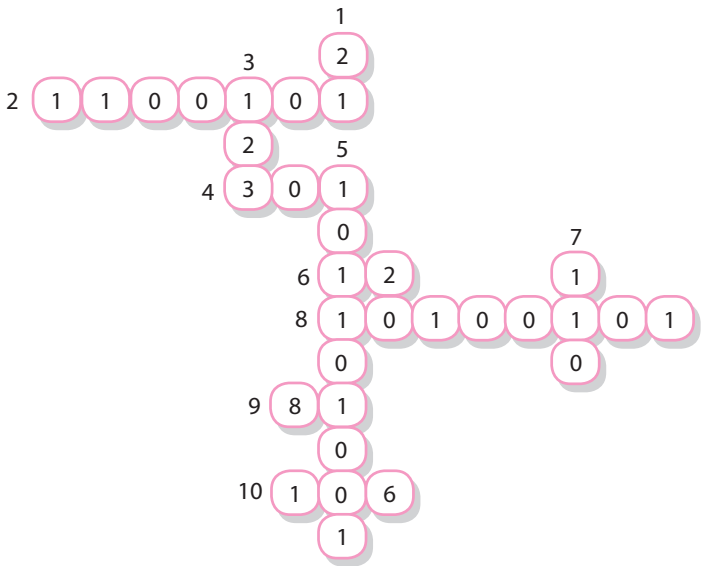
$1x32 + 0x16 + 1x8 + 1x4 + 0x2 + 1x1 = 32 + 0 + 8 + 4 + 0 + 1$

Step 4: Add up the numbers written above:

$32 + 0 + 8 + 4 + 0 + 1 = 45.$

So, 45 is the decimal equivalent of the binary number 101101.

Brain Teaser



Lab Session

Do yourself.

2. Formulas, Functions and Charts in Excel

Exercise

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

B. 1. Functions 2. equals 3. square root 4. column 5. Dollar ($)

C. 1. (b) 2. (c) 3. (d) 4. (a)

D. 1. A cell or a range of cells that you want to use in your calculation is called cell reference.

2. a. Data series is related to the set of values. It is represented by the bars or slices that represent the data values.

   b. Legend is a key which shows the meanings of symbols and colours used in the chart.

E. 1. A formula is an expression which calculates the value of a cell. Formulas in Microsoft Excel begin with an equal sign. For example,

= 10 + 20 / 5 + (5*4)

= 20 + 60 * 10

2. Excel follows certain rules of precedence:

   (i) Excel calculates expressions within parentheses '(' , ')' first.

   (ii) Excel calculates multiplication and division before addition and subtraction.

   (iii) Excel calculates consecutive operators with the same level of precedence from left to right.

3. The LEN function returns the length of the text string. For example,

=LEN("Excel") will return 5.

4. Rules for using functions are:

   (i) All Excel functions must begin with = sign.

   (ii) Function name must be a valid Excel name.

   (iii) Function must be followed by opening and closing parenthesis.

   (iv) Functions must contain an argument within it.

5. The Column chart is used to show the changes in data over a period of time or comparison among the different data items and Scatter chart is used to show the correlations between the two sets of values.

Brain Teaser

1. Pie Chart
2. Cell Referencing

Lab Session

Do yourself.

3. More on Excel

Exercise

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

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

C. 1. Excel can arrange the selected data in ascending or descending order. This is called sorting of data.

2. Filters can be removed by clicking anywhere in the worksheet and repeating steps to apply filters.

3. For arranging a data in the sequential order, we need to sort the data.

D. 1. To use Custom Sort:

Step 1 Select the range of columns to be sorted.

Step 2 Click Sort & Filter command from Editing group under Home tab.

Step 3 Click on Custom Sort option.

Step 4 Check My data has headers checkbox if the selected columns have a heading at the top.

Step 5 Click the Sort by box to open list of column headers. Select the desired column head for sorting.

Step 6 Click Sort On box to select Values option.

Step 7 Click Order box and select the desired option.

Step 8 Click on Add Level button on the top of the dialog box. This will add one more row to define new criteria.

Step 9 Repeat steps 5 to 7 to sort another column.

Step 10 Click on OK button.

2. Sorting data means to arrange the data in ascending or descending order. On the other hand, filtering data means to filter unwanted data from a set of data.

3. Names of criteria are:

(i) Highlight Cells Rules

(ii) Top/Bottom Rules

(iii) Data Bars

(iv) Color Scales

(v) Icon Sets

Brain Teaser

1. By sorting the data of sales column in descending order.
2. Conditional Formatting

Lab Session

Do yourself.

Periodic Assessment 1

(Based on chapters 1 to 3)

A. 1. The total number of digits used in a number system is called its base.

2. Hexadecimal number system consists of 16 digits from 0-9 and A to F.

3. In BEDMAS rule, E stands for exponentiation.

4. $ sign can be used in both absolute referencing and mixed referencing.

5. Conditional Formatting command is present under Home tab.

B. 1. It is used to show the changes in data over a period of time.

2. It is used to show the relative size of each value.

3. It is used to display the quantitative magnitude of the data graphically.

4. It is used to display the data in the form of long rectangular rods also called bars.

5. It is used to show the correlations between the two sets of values.

C. 1. Scientific 2. H 3. Particular 4. Average

D. 1. (c) 2. (e) 3. (b) 4. (a) 5. (d)

4. Introduction to HTML

Exercise

A. 1. (a) 2. (c) 3. (d) 4. (d)

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

C. 1. markup 2. <head> 3. <b> 4. <p>

D. 1. HTML stands for Hyper Text Markup Language. It is the most widely used markup language to design web pages.

2. a. Empty tag

   b. Container tags

3. a. Hypertext is a piece of ordinary text that has special feature of linking to other documents or web pages.

   b. Markup language is a language that uses special symbols called Tags to mark up a text document that instructs the browser how to display the text.

E. 1. The <HTML> tag tells the web browser that the text contained between <HTML> and </HTML> is a web page and can be viewed using a web browser. The <BODY> tag tells the web browser that the text contained between <BODY> and </BODY> tags is to be shown on the web page.

2. Rules for writing HTML tags are:

   (i) Container tags should always be closed properly.

   (ii) Values given to the attributes should be enclosed within the double quotes.

   (iii) Tag name should not contain spaces.

   (iv) There should be no spaces between < and > in a tag.

   (v) Tags must be nested correctly.

3. The Line Break tag is written as <BR>. This tag is used when you want to start a new line, but do not want to start a new paragraph. On the other hand, the Horizontal ruler tag is written as <HR>. This tag is used when you want to divide your web page into different sections.

4. The <BODY> tag has the following attributes:

   BGCOLOR, TEXT and BACKGROUND.

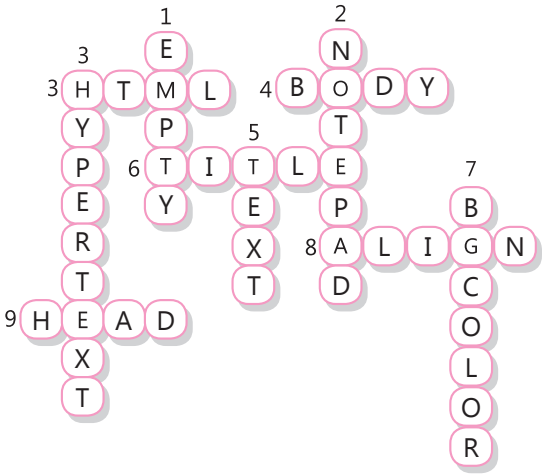
5. **BGCOLOR** attribute defines a colour for the background of your web page. It can be used as:

   <BODY BGCOLOR="red">

   BACKGROUND inserts the image as the background of the web page. It can be used as:

   <BODY BACKGROUND="lily.jpg">

Brain Teaser



Lab Session

Do yourself.

5. Introduction to Photoshop

Exercise

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

B. 1. pencil 2. workspace 3. lasso 4. Horizontal Type 5. gradient

C. 1. Rectangular Marquee Tool is used to select a rectangular portion of an image.

2. Lasso Tool is used to make freehand selection in the images.

3. RGB stands for Red Green Blue. CMYK stands for Cyan Magenta Yellow Black.

4. Brush Tool is used to draw brush strokes to give an effect of painting to the image and Paint Bucket Tool is used to fill the colour in closed shapes and images.

D. 1. Adobe Photoshop is a graphics software developed and published by Adobe Inc. Features of Photoshop are:

- User friendly interface
- Photo manipulation can be done in less time

- Powerful tools are used to change the color of an image by adjusting brightness, contrast, color balance, hue and saturation levels
- Create graphics for web applications with reduced file size, thus helping in faster loading of the websites
- Layer effect preserves the original state of the image
- Can be used to create 3-D icons

2. There are various types of painting tools in Photoshop. Some of them are:
   - **Pencil Tool:** It is used to draw freehand shapes.
   - **Brush Tool:** It is used to draw brush strokes to give an effect of painting to the image.
   - **Eraser Tool:** It is used to erase or rub some portion of an image or workspace.
   - **Paint Bucket Tool:** It is used to fill the colour in closed shapes.
3. Rectangular Marquee Tool is used to select a rectangular portion of an image and Elliptical Marquee Tool is used to select an oval or circular portion of an image.

Brain Teaser

1. Quick Selection Tool
2. Brush Tool

Lab Session

Do yourself.

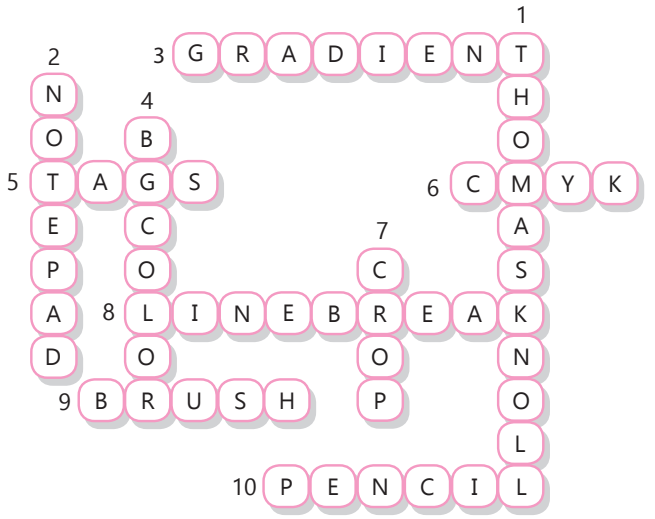
Periodic Assessment 2

(Based on chapters 4 & 5)

A. 1. <P> 2.
 3. <HR> 4. <TITLE>

B. 1. Line Tool 2. Gradient Tool 3. Rectangle Tool 4. Lasso Tool

C.



Test Sheet 1

(Based on chapters 1 to 5)

Section A

A. 1. (c) 2. (c) 3. (c) 4. (a)
5. (a) 6. (a) 7. (b) 8. (b)

B. 1. radix 2. Dollar $ 3. Editing 4. TEXT 5. Lasso Tool

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

D. 1. (c) 2. (a) 3. (d) 4. (e) 5. (b)

Section B

A. 1. The base of octal number system is 8 and hexadecimal number system is 16.

2. A cell or a range of cells that you want to use in your calculation is called cell reference.

3. For arranging a data in the sequential order, we need to sort the data.

4. Empty tags and Container tags.

5. Marquee tools are used to select a portion of the image.

B. 1. To convert a decimal number into a binary number:

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 have your binary number.

2. Excel follows certain rules of precedence:

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3. To use Custom Sort:

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   Step 6 Click Sort On box to select Values option.

   Step 7 Click Order box and select the desired option.

   Step 8 Click on Add Level button on the top of the dialog box. This will add one more row to define new criteria.

   Step 9 Repeat steps 5 to 7 to sort another column.

   Step 10 Click on OK button.

4. To apply cell border:

   Step 1 Select the cells on which you want to apply the cell border.

   Step 2 Click on Border command from the Font group under the Home tab.

   Step 3 Click on appropriate option from the drop-down menu.

6. Animations in Flash

Exercise

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

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

C. 1. The movie clip symbol is a type of symbol which contains another Flash movie within a Flash movie.

2. Layers are thin pieces of transparent sheets.

3. A keyframe is a frame where major changes take place in an animation.

4. Timeline is a panel in Flash that contains layers and frames.

D. 1. Symbol is a reusable object in Flash and an instance is the copy of the original symbol. You can create many instances of a symbol.

2. Each of the button symbols has four different stages such as Up, Over, Down, and Hit. The functions of these four different states are:

(i) The Up state is the state when the mouse pointer is not over the button.

(ii) The Over state is the state when the mouse pointer is moved over the button.

(iii) The Down state is the state when the button is clicked.

(iv) The Hit state is the state which will define the response of the user's mouse action.

3. A tween is a type of animation in Flash. In tween, you need to create the starting and ending keyframes to animate the object. There are two types of tweens in Flash that are shape tween and motion tween.

Brain Teaser

1. Layer 2 2. Layer 1 3. Layer 1 4. Shape Tween

Lab Session

Do yourself.

7. Internet and E-mail

Exercise

A. 1. (c) 2. (a) 3. (c) 4. (a) 5. (c)

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

C. 1. Bcc 2. To 3. Cc 4. Attachment 5. Website

D. 1. The Internet is a computer network that connects hosts and end systems throughout the world.

2. HTTP stands for Hypertext Transfer Protocol. It is a protocol used on Web.

3. URL stands for Uniform Resource Locator. It is an address of a web page over the Internet.

4. An Electronic mail or e-mail can be defined as the system of exchanging messages electronically through a communications network by using computer.

D. 1. The World Wide Web (WWW) is a large information system where you can surf and get information. WWW is also known as Web. It is differ from Internet as the Internet is a computer network that connects hosts and end systems throughout the world.

2. Advantages of e-mail are:

(i) An e-mail can be sent anytime and from anywhere in the world.

(ii) An e-mail can be sent to many people at a time.

(iii) An e-mail can be easily forwarded to anyone without typing it again.

(iv) Sending an e-mail is fast in comparison to traditional mails.

(v) Music, images or any other computer file can be shared with anyone by using e-mail.

(vi) If an e-mail is not delivered, you receive an e-mail explaining the problem why the e-mail could not be delivered.

3. For signing in to your Gmail account:

Step 1 Double-click on the Web browser icon.

Step 2 Type www.gmail.com in the address bar of the browser window and press Enter key.

Step 3 Click on Sign in button on the top right-hand of the browser window.

Step 4 In the Email or phone field, enter username of the email address that you have created.

Step 5 Click on Next button.

Step 6 In the Password field, enter the password you had created for your email account and click on Next button.

For signing out to your Gmail account:

Step 1 Click on the icon on the top right corner of your browser window.

Step 2 Click on Sign out button.

Brain Teaser

A. 1. Attachment in an e-mail

2. Sushant should write the e-mail address of Ajay in the To field and e-mail addresses of others in the Cc field.

B.

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

Lab Session

Do yourself.

Periodic Assessment-3

(Based on chapters 6 & 7)

A. 1. Show or Hide All Layers 2. Blank Keyframe

3. Attach files 4. Lock or Unlock All Layers

B. 1. **To:** In this field, type your friend's e-mail address. You can enter more than one address by pressing ',' after each e-mail address.

2. **Cc:** Cc stands for carbon copy. It is marked to the e-mail address who is to be informed that an e-mail has been sent to the person marked in To field.

3. **Bcc:** Bcc stands for blind carbon copy. It is marked to the e-mail address when you do not want others to see to whom the e-mail has been sent.

4. **Subject:** In this field, a one line introduction about the purpose of the e-mail is mentioned.

C. 1. Happy 2. Crying 3. Angry 4. Tired 5. Fine

6. See You Later 7. By The Way 8. As Soon As Possible

D. 1. Ctrl + L 2. F8 3. Ctrl + Enter 4. F7

8. Computer Safety and Security

Exercise

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

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. Some of the authentication types are:

(i) Password Authentication (ii) Biometric Authentication

2. Trojan or Trojan horse is a type of malware program. The purpose of the trojan horse is to conceal itself inside the software that seems legitimate.

3. An antivirus program is a software which can detect the presence of a virus on a computer and remove the virus.

D. 1. Dust can potentially destroy the parts of your computer. By cleaning your computer regularly, you can maintain its performance and avoid expenses on repairs. Cleaning the computer means cleaning different parts of the computer system like keyboard, mouse and monitor.

2. Malware is a malicious software. It is designed to damage or carryout other unwanted actions on a computer system. The different types of malware are virus, worm, trojan horse, spyware, zombies, ramsomware, rootkit and backdoor.

3. The biggest difference between a worm and a virus is that worms are aware if the system is connected to a network. A virus finds it very easy to replicate itself amongst files on the same computer, however, it has a hard time jumping from one computer to another. A worm overcomes this computer-to-computer hurdle by seeking new hosts on the network and attempting to infect them.

Brain Teaser

A. 1. Spyware 2. Trojan horse 3. Zombie 4. Ransomware

B.

A	I	I	E	R	D	I	I	A	B	A	I
T	V	K	A	R	O	K	L	W	U	B	T
O	I	E	T	O	N	T	R	O	J	A	N
A	R	O	O	T	K	I	T	R	N	B	H
I	U	T	C	T	T	E	K	M	N	I	E
W	S	P	Y	W	A	R	E	M	Y	T	R
E	L	O	A	I	L	M	I	A	R	W	S

Lab Session

Do yourself.

9. Programming with Python

Exercise

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

B. 1. (d) 2. (a) 3. (b) 4. (c)

C. 1. object-oriented programming 2. reserved 3. operators
4. print( ) 5. input( )

D. 1. Python is a powerful, high-level, general purpose, interpreted, interactive, multi-platform, and object-oriented programming language.

2. The % operator returns the remainder. For example, 11%4 returns 3 as remainder.

   The ** operator raises the first operand to the power of the second and returns the result. For example, 11**4 returns 14641.

3. A character set means the characters like alphabet, digits or special symbols that can be used to write programs in Python language.

E. 1. Four features of Python are:

   (i) **Easy to learn:** Python has relatively few keywords, simple structure and a clearly defined syntax.

   (ii) **Easy to read:** Python code is just like English language.

   (iii) **Case Sensitive:** Python is case sensitive language. In Python, 'pay' and 'PAY' are not the same. They are interpreted differently.

   (iv) **Free and Open source:** Python is an example of open source software. It means you can freely distribute copies of this software, read its source code and make changes to it.

2. Variables are memory locations that are used to store values. Rules for defining a variable are:

   (i) A variable name must start with a letter (a–z, A–Z) or an underscore (_).

   (ii) A variable name cannot start with a digit.

   (iii) Keywords cannot be used as variable names.

   (iv) A variable can only contain alpha-numeric characters and underscore (A-Z both capital as well as small) and (0 – 9) numbers.

(v) No special symbols like !, @, #, $, %, etc. can be used in variable name.

(vi) Variable names are case sensitive.

(vii) Variable names can be of any length.

3. The input( ) statement is used to take input from the user during the execution of the program. The input statement acts as a message communicator between user and the computer. For example,

X = input ("What is your name?")

In this example, the input statement uses the prompt "What is your name?" to get the input from user and assigns it to the variable X.

4. **Interactive Mode:** This mode is suitable for writing small codes. We cannot save program in interactive mode for future use. We can write the Python statements at the prompt and the interpreter will show the results. This mode is not suitable for programs that involve large number of statements to be executed.

Script Mode: In this mode, we can store the code in a file and run it as and when reqired. We can save the code for future use.

Brain Teaser

A. 1. By using arithmetic operator

2. The input( ) and print( ) statements

B. 1. Enter the radius 7

43.96

2. Enter value of goods 50

GST to be paid: 2.5

Total invoice value: 52.5

3. 10 10 2 5

False

5.0

50

10000000000

Python

Lab Session

✶
```
P = int(input("Enter principle amount: "))
r = int(input("Enter rate of interest: "))
t = int(input("Enter time duration in years: "))
SI = (P*r*t)/100
print("Simple interest is: ",SI)
```

✶
```
bsalary = int(input("Enter basic salary: "))
incentive = bsalary * 7/100
netsalary = bsalary + incentive
print("Net salary is: ",netsalary)
```

Periodic Assessment 4

(Based on chapters 8 & 9)

A. 1. Authentication 2. Antivirus 3. Rootkit 4. Character Set

5. List

B. 1. Keywords are the reserved words which cannot be used as variable names.

2. The input( ) statement is used to take input from the user during the execution of the program.

3. The print( ) statement is used to print the output of a program on the screen.

C. YOU HAVE DECIPHERED CORRECTLY

D. 1. Names of five malware programs are:

(i) Virus (ii) Worm (iii) Trojan horse (iv) Rootkit (v) Spyware

2. Variables are memory locations that are used to store values. Rules for defining a variable are:

(i) A variable name must start with a letter (a–z, A–Z) or an underscore (_).

(ii) A variable name cannot start with a digit.

(iii) Keywords cannot be used as variable names.

(iv) A variable can only contain alpha-numeric characters and underscore (A-Z both capital as well as small) and (0 – 9) numbers.

(v) No special symbols like !, @, #, $, %, etc. can be used in variable name.

(vi) Variable names are case sensitive.

(vii) Variable names can be of any length.

3. Arithmetic operators are used to do basic mathematical calculations.

E. 1. radius = float(input("Enter radius of circle: "))

```
pi = 3.14
area = pi * radius * radius
circumference = 2 * pi * radius
print("Area of circle is:",area)
print("Circumference of circle is:", circumference)
```

2.
```
print("*  *  *  *  *  *  *  *  *  *  *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*                              *")
print("*  *  *  *  *  *  *  *  *  *  *")
```

Test Sheet 2

(Based on chapters 6 to 9)

Section A

A. 1. (a, b, c) 2. (a) 3. (a) 4. (a) 5. (c)
6. (c) 7. (a) 8. (c)

B. 1. # 2. backgrounds 3. frame 4. movie clip
5. Authentication

Section B

A. 1. Adobe Flash Professional CS6 is an authoring tool to create games, applications, simple animations, etc.

2. We use button symbols to add interactivity to the movie.

3. Rootkit is a malware that gains administrator access to the host system.

4. The Run → Run Module command is used to run the Python program.
5. An antivirus program is a software which can detect the presence of a virus on a computer and remove the virus.
6. E-mail stands for electronic mail.

B.

1. Animation involves a series of still images which are usually sketched or painted and displayed in a rapid sequence. This transition from one image to another is so quick that it appears to be moving. Animation in Flash is created by changing the contents of the successive frames.
2. Computer viruses are similar to their biological counterparts because they are capable of self-replication. The prime motive of a virus is not to cause damage, but to clone itself onto another host so that it can spread further. If a virus causes damage it is more likely to be detected, and for this reason virus authors employ stealth techniques to keep it unnoticed.
3. The World Wide Web (WWW) is a large information system where you can surf and get information. It consists of several public and private websites which may be interlinked and accessible over the Internet worldwide. WWW is also known as Web.
4. Biometric authentication is a process in which biological characteristics such as finger print, face, and retina are used to check the identity of an individual. In this process, a biometric machine is used to capture the biological details of a person and compare these details with the existing details, which are stored in computer.
5. a. A variable is a memory location that is used to store a value. When a variable is created, some space is allocated in memory for it.
   b. An operator is special symbol in Python that is used to perform arithmetic or logical computation.

C.

```
CS_Marks = int(input("Enter marks of Computer Science: "))
English_Marks = int(input("Enter marks of English: "))
Science_Marks = int(input("Enter marks of Science: "))
Total = CS_Marks + English_Marks + Science_Marks
Average = Total/3
print("Total marks:", Total)
print("Average marks:", Average)
```