

Number System



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Decimal 2. 8 3. 1 4. 15 5. 0 with Carry 1

D. Answer the following questions.

- The number system or the numeral system is the system of naming or representing numbers. A number system is required as a system of writing to express numbers.
- See topic 'Decimal to Binary Conversion' on book page no- 7.
- Octal Number System (Base 8 Number System)**

In the Octal number system, the base is **8** and it uses numbers from **0 to 7** to represent numbers. Octal numbers are commonly used in computer applications.

Hexadecimal Number System (Base 16 Number System)

In the hexadecimal system, numbers are written or represented with base **16**. In the hexadecimal system, the numbers are first represented just like in the decimal system, i.e., from **0 to 9**. Then, the numbers are represented using the alphabet from **A to F**. The below given table shows the representation of numbers in the **hexadecimal number system**.

Hexadecimal	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Decimal	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- See topic 'Computer Arithmetic' on book page no- 8.
- (i)

$$\begin{array}{r}
 \overset{\text{Carry}}{\underset{\text{Carry}}{\overset{\text{Carry}}{\overset{\text{Carry}}{\text{1}}}}} \\
 \begin{array}{r}
 1\ 1\ 1\ 1\ 1 \\
 +\ 1\ 0\ 1\ 1 \\
 \hline
 1\ 0\ 1\ 0\ 1\ 0
 \end{array}
 \end{array}$$

Therefore, $(11111)_2 + (1011)_2 = (101010)_2$

(ii)

			Borrowed 1		Again Borrowed 1	
		0	1	0		
	Balance	Balance			Number is now	
	0	1			1 0	
1	1	0	0		<u>- 1</u>	
- 0	0	1	1		<u> 1</u>	
1	0	0	1			

Therefore, $(1100)_2 - (11)_2 = (1001)_2$

(iii)

1 1 1 1	
X 1 0 1	
1 1 1 1	
0 0 0 0 x	
1 1 1 1 x x	
1 1 0 1 0 1 1	

Therefore, $(1111)_2 \times (101)_2 = (1101011)_2$

(iv)

	0 1 1 1 1	← Quotient
1001	1 0 0 0 0 1 1 1	← Dividend
	1 0 0 1	
	0 0 1 1 1 1	
	1 0 0 1	
	0 1 1 0 1	
	1 0 0 1	
	0 1 0 0 1	
	1 0 0 1	
	0 0 0 0	← Remainder

Therefore, Quotient = $(01111)_2$ and Remainder = $(0)_2$

Fun Activity



1. Find and circle the following words extracted from this chapter in the wordsearch given below. See across and downward.

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

2. The following numbers are holding wrong base values. Identify the correction and rewrite each.

- (a) $(78)_{10}$ **$(78)_8$**
 (b) $(443)_2$ **$(443)_{10}$**
 (c) $(00011101)_{16}$ **$(00011101)_2$**
 (d) $(AB9)_8$ **$(AB9)_{16}$**

HOTS



See topic 'Binary Subtraction' on book page no-9.

2

Advanced Features of Excel



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Chart 2. Legends 3. Xaxis,Yaxis 4. Sorting 5. Filter

D. Answer the following questions.

- There are many advantages of charts. Some of the advantages are:
 - Charts present data and information in an attractive manner.
 - Charts present data and information in a compact manner.
 - Charts are easier to understand and compare.
 - Charts have a long-lasting effect on the mind than a simple data statement.
- Chart area and Plot area

Chart Area	Plot Area
It includes all objects and elements in a chart.	This is a rectangular area where data is actually plotted. It is bounded by two axes (x-axis and y-axis).

- Column chart and Bar chart

Column Chart	Bar Chart
A column chart is used to depict comparisons among different items of data or changes in data trend over a period of time. In this type of chart, values are represented on the vertical axis whereas categories are represented on the horizontal axis. Each bar in the chart represents value of one item of data.	A bar chart displays the comparisons among individual items as sets of horizontal bars. A bar chart is similar to a column chart except that in this type of chart, the values are represented on the horizontal axis whereas categories are represented on the vertical axis.

- Sorting and Filtering

Sorting	Filing
Sorting of data mean to organise the data in ascending or descending order. Excel allows you to sort both numeric and textual data. You can sort the data according to a particular column as well as a range of data.	A filter can be used to narrow down data in a worksheet to view only selective records. The filter hides away the rest of the data from the view.

- Legends and Data series

Legends	Data Series
This identifies each data series in a unique colour or pattern.	It refers to the data entries from which a chart is derived.

3. Chart elements give more descriptions to your charts, thus making your data more meaningful and visually appealing.
4. In case, more than one columns are to be sorted in such a way that the first column is in ascending order and if some data is same for more than one rows then the second column of such rows gets sorted in descending order. You can do this in Excel using Custom Sort.
5. See topic 'Conditional Formatting in MS Excel' on book page no- 25.
6. To remove all filters from a worksheet, simply click on the **Filter** button.

Fun Activity



See Picture on book page no 15.

HOTS



Use custom sorting.

3

Introduction to Adobe Animate CC



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Lines
2. Stroke
3. Label text, Block text
4. Break Apart
5. Group

D. Answer the following questions.

1. Adobe Animate CC is a software package that allows the users to create animations. Using this software, one can combine images, audio, video

and other effect interactive create animations. Originally, it was designed to create animations to be displayed on web pages. Animate is now commonly used to create games, cartoons, websites, photo galleries, and much more.

2. See topic 'Components of Adobe Animate CC Window' on book page no- 31.
3. **Properties Panel** : It is also called **Property Inspector**. It is generally appears at the bottom of the window. It provides options for changing the commonly used properties of the currently selected tool in the Tools panel or the selected graphic on the stage.

Timeline : The Timeline is used to set the sequencing and timings of various graphics and other elements of a movie to create animation. The major components of the Timeline are **Layers, Frames** and the **Playhead**.

4. **Stroke color** is the colour of the line you draw or the outlines of the object.
Fill Color is the colour which you fill inside the shape.
5. The Line tool helps us to draw straight lines.
The Pencil tool can be used to draw freeform lines in the same way we would use a real pencil to draw any figure on a canvas or paper.

Fun Activity



See picture on book page no- 32.

HOTS



The most common file formats used with the specific file extensions:

- **.fla file extension** is used for Editable Adobe Flash project (animation, movie, flash application).
- **.flv file extension** is used for Flash video.
- **.swf file extension** is used for shockwave Flash, Animated vector format for the Internet.

4

Introduction to HTML



Let's Do This

A. Multiple Choice Questions.

1. (a)
2. (b)
3. (b)
4. (b)
5. (b)
6. (b)

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. <BODY> 2. Line break 3. <HR> 4. <SUP> 5. <P>

D. What are the following HTML tags used for?

- (a) **<TITLE>** : The text inside it, only appears at the top of the browser window i.e., at the title bar.
- (b) **<HEAD>** : It defines the HTML document header i.e., it displays information about the document. It does not affect the appearance of document in the browser.
- (c) **<P>** : It is used to start a new paragraph.
- (d) **<HR>** : It is used to insert a horizontal line in your web page.
- (e) **
** : The
 tag inserts a single line break.
- (f) **<SUB>** : This tag is used to display the text as subscript.

E. Answer the following questions.

1. **HTML** stands for **HyperText Markup Language**. It is a language used to create web pages. It uses some standard tags to tell your web browser how to display the web page you have requested. For this reason, it is called **markup language**.

Features of HTML

- HTML is easy to learn and execute as it is based on tags.
 - It is not a case sensitive language.
 - HTML is an interpreter-based language as its commands are executed instruction by instruction.
2. ** Tag** : This tag is used to make the text bold. It starts with and ends with .
- <I> Tag** : This tag is used to tilt the text. It starts with <I> and ends with </I>.
- <U> Tag** : This tag is used to insert a line below the text. It starts with <U> and ends with </U>.

3. (a)

Container Tag	Empty Tag
It contains text or other tags. These tags are used in pairs and have a starting tag and ending tag. An End tag is always preceded by a forward slash (/).	It does not contain text or any other tag. It has only a start tag. It does not have an End tag.



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. ordered 2. <MARQUEE> 3. nested
4. <TR> 5. <CAPTION>

D. Answer the following questions.

1. tag is used to create an ordered list like 1, 2, 3, a, b, c, I, II, III, etc. Here, OL stands for Ordered List.

 tag is used to create unordered list like bulleted list in the form of disc, square or circle. Here, UL tag stands for Unordered List.

2. See topic 'Nested List' on book page no- 61.
3. <table>

```
<thead>
  <th> Column 1 </th>
  <th> Column 2 </th>
  <th> Column 3 </th>
  <th> Column 4 </th>
</thead>
<tbody>
  <tr>
    <td> Row 1 Column 1 </td>
    <td> Row 1 Column 2 </td>
    <td> Row 1 Column 3 </td>
    <td> Row 1 Column 4 </td>
  </tr>
</tbody>
```

```

        <td> Row 2 Column 1 </td>
        <td> Row 2 Column 2 </td>
        <td> Row 2 Column 3 </td>
        <td> Row 2 Column 4 </td>
    </tr>
<tr>
    <td> Row 3 Column 1 </td>
    <td> Row 3 Column 2 </td>
    <td> Row 3 Column 3 </td>
    <td> Row 3 Column 4 </td>
</tr>
</tbody>
</table>

```

4. See topic '<MARQUEE> TAG' on book page no- 61.
5. Tables help us to display data on the web page in an organised and systematic manner. They assist in the positioning and the arrangement of content on the web page. HTML **<TABLE>** tag is used to display data in tabular form (row * column). There can be many columns in a row.

Fun Activity



1. **Underline all the opening tags with green color and all the attributes with blue color.**

```

<HTML>
  <HEAD>
    <TITLE> Sample page </TITLE>
  </HEAD>
  <BODY bgcolor="red">
    <P> Hello everyone! </P>
    <BR>
    <P align="right"> Bye! </P>
  </BODY>
</HTML>

```

[Here line represents green color and line represents blue color.]

2. Find nine HTML5 attributes used while creating lists and tables from this grid.

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

HOTS



HTML contains no programming logic. It doesn't have common conditional statements such as If/Else. It can't evaluate expressions or do any math. It doesn't handle events or carry out tasks.

6 Computer Virus



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Virus 2. Boot 3. Creeper 4. Antivirus 5. Macro

D. Name the following viruses.

1. Trojan Horse
2. Boot Virus
3. Worms
4. Program file virus
5. Spyware

E. Answer the following questions.

1. See topic 'Computer Virus' on book page no- 69.
See topic 'Types of Virus' on book page no- 73.
2. Our computer gets affected by virus by the following ways:
 - It can be loaded onto your computer through an infected floppy, pen drive, CD-ROM, or other storage medium.
 - It can be transferred through a downloaded file, or an e-mail attachment. At this point, an infected file is in our computer's hard drive. When we run the program, it infects the computer.
3. (a) **Boot Virus** : The virus that infects a part of a hard disk or a floppy drive is referred to as boot sector virus. Boot sector is a crucial part of a disk where the operating system and boot programs will be stored. This virus becomes active at the time of booting of system. These viruses are almost extinct as floppy disks are outdated now.
Examples : Polyboot .B and Antix, Disk killer, Stoned virus, etc.
- (b) Worm is a special type of virus program that copies and multiplies itself by using computer networks and security due to heavy consumption of system memory or network bandwidth.
- (c) **Spyware** : Spyware is a type of malware that covertly gathers user's information through the user's Internet connection without his or her knowledge usually for advertising purpose. Spyware applications are typically bundled as a hidden component of freeware or shareware programs that can be downloaded from the Internet.
- (d) **Trojan Horse** : Trojan horse is a simple program that pretends to be a useful application, whereas it always does something destructive— mostly it damages a computer like erasing a disk. It is not self-replicating. It can spread only when it is copied to another system.

4. Symptoms of A Computer Virus

A virus can cause problems in a computer in many ways such as:

- Unexplained data loss by formatting the hard disk.
- Reducing the speed of a computer by decreasing the memory.
- Causing strange movements or patterns on the screen.
- Increasing the size of files by attaching themselves to the files.
- Sudden decrease in free space on hard disk.
- Frequent hanging of the system.

- Displaying unusual messages.
 - Showing abnormal write protect error.
 - Displaying a change in data against the file name in the directory, when a virus modifies the file.
 - Deleting or damaging files.
 - Frequent computer crashes.
 - Strange sounds or music plays from the speakers unexpectedly.
5. See topic 'What does a Computer Virus do?' on book page no- 69, 70.
 6. Antivirus software, also known as anti-malware, is a computer program used to prevent, detect and remove malware. It is an application software designed to detect and remove the virus from the computer system.

Example : Norton, Bit defender, McAfee, Quick Heal, Kaspersky etc.

Fun Activity



Find out the names of five virus and five Antivirus in the word grid given below:

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

HOTS



Program File Virus

7

Operators and Conditional Statements



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Operand 2. Exponent 3. * 4. False 5. colon

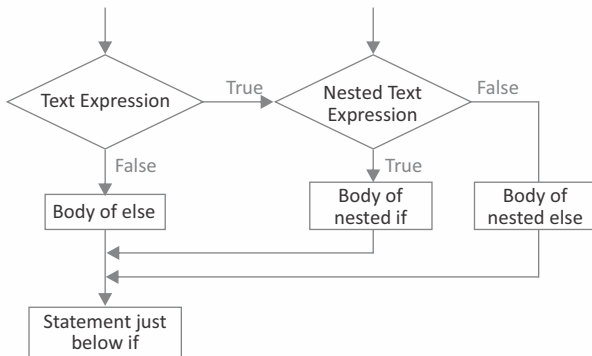
D. Answer the following questions.

1. See topic 'Operators' on book page no- 78.
2. / operator is used to divide the numbers and give an output in the decimal form while // operator is used to divide the numbers and give an output in the integer form by removing decimal part.
3. String replication operator * is used to replicate a string multiple times.
4. Conditional statements in Python languages decide the direction (Control Flow) of the flow of program execution. The statements which are executed depending upon a condition are known as conditional statements. A condition is used to decide which set of statements is to be executed between two alternative sets of statements. Therefore, these statements are also called selective statements or decision control statements.

5. Syntax :

```
if(condition):  
    statement  
elif(condition):  
    statement  
.  
else:  
    statement
```

6.



Flowchart of Python Nested if Statement



A. IDLE Shell 3.11.3

```
File Edit Shell Debug Options Window Help
Python 3.11.3 (tags/v3.11.3:f3909b8, Apr 4 2023, 23:49:59) [MSC v.1934 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/HP/Desktop/digiware 7 page 88 pics/A.py =====
Enter a First Number:5
Enter a Second Number:9
Second number is greater than first number
>>>
```

Ln: 8 Col: 0

B. IDLE Shell 3.11.3

```
File Edit Shell Debug Options Window Help
Python 3.11.3 (tags/v3.11.3:f3909b8, Apr 4 2023, 23:49:59) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/HP/Desktop/digiware 7 page 88 pics/B.py =====
Positive number
>>> |
```

Ln: 6 Col: 0

C. IDLE Shell 3.11.3

```
File Edit Shell Debug Options Window Help
Python 3.11.3 (tags/v3.11.3:f3909b8, Apr 4 2023, 23:49:59) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/HP/Desktop/digiware 7 page 88 pics/C.py =====
Above ten
and also above 20.
>>>
```

Ln: 7 Col: 0

D. IDLE Shell 3.11.3

```
File Edit Shell Debug Options Window Help
Python 3.11.3 (tags/v3.11.3:f3909b8, Apr 4 2023, 23:49:59) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/HP/Desktop/digiware 7 page 88 pics/D.py =====
b is not greater than a
>>> |
```

Ln: 6 Col: 0



Leading space or tab at the beginning of the line is considered as indentation level of the line, which is used to determine the group of statements. Statements with the same level of indentation are considered as a group or block.

Indentation is the most significant concept of the Python programming language. Improper use of indentation will end up "**IndentationError**" in our code.

Indentation Rules

- Use the colon (:): to start a block and press Enter.
- All the lines in a block must use the same indentation, either space or a tab.
- Python recommends four spaces as indentation to make the code more readable. Do not mix space and tab in the same block.
- A block can have inner blocks with next level indentation.

Example : The lines `print ("Today is Monday")` and `print ("Today is Tuesday")` are two separate code blocks. The two blocks of code in our example if-statement are both indented four spaces. The final `print ("Month of March")` is not indented, so it does not belong to the else block.

```
E1.py - C:/Users/HP/Desktop/digiware 7...
File Edit Format Run Options Window Help
a = "bcd"
if a == "bcd":
    print("Today is Monday")
else:
    print("Today is Tuesday")
print("Month of March")
|
Ln: 7 Col: 0
```

```
IDLE Shell 3.11.3
File Edit Shell Debug Options Window Help
Python 3.11.3 (tags/v3.11.3:f3909b8, Apr 4
2023, 23:49:59) [MSC v.1934 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "lic
nse()" for more information.
>>>
===== RESTART: C:/Users/HP/Desktop/digi
ware 7 page 88 pics/E1.py =====
Today is Monday
Month of March
>>>
Ln: 7 Col: 0
```



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

1. Photoshop CC 2. Rectangle 3. Workspace
4. .psd 5. Move

D. Answer the following questions.

1. Adobe Photoshop CC is an image-editing software designed to modify and enhance the quality of images. It has been developed by Adobe, a computer software company in California, US. Photoshop is a popular software used to edit photographs and pictures. Photoshop CC, a part of the Adobe Creative Cloud, is the latest version of this software.

We Use Photoshop for the following reason:

- (a) You can create graphics containing both images and text.
 (b) You can design graphics for a web page or a website.
 (c) You can create photographs that look deceptively real (actually are not real), You can enhance a photograph by correcting its flaws and imperfections.
 (d) It is used to create a photo collage, that is, to combine various photographs into one single file.
 (e) It is used for making layouts for newsletters, magazines, newspapers, etc.
2. See topic 'Components of The Adobe Photoshop CC' on book page no-92.
3. Follow the steps given below to crop an image.

Step 1 : Open an image in Photoshop which you want to crop.

Step 2 : Select the **Crop tool** from the Tools panel. Photoshop automatically places a **crop box** and **handles** around your image. Handles can be seen in each of the four corners as well as in the middle of the sides.



Using Crop Tool

Step 3 : Just drag these handles to crop the image according to the requirement and press **Enter** key when done.

Step 4 : Don't forget to uncheck the **Delete Cropped Pixels** checkbox in the **Options** bar to be able to change the crop selection later on.

4.

Lasso Tool	Rectangular Marquee Tool
The Lasso Tool helps you to select an irregular area of an image by drawing a free-hand selection border. This tool is also called freehand selection tool.	It is used to select a rectangular or square area of an image.

5. See topic 'Background and Foreground Colors' on book page no. 101.

Fun Activity



See Picture on book page no. 92.

HOTS



Do yourself

9

AI for SDGs



Let's Do This

A. Multiple Choice Questions.

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

B. State true 'T' or false 'F'.

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

C. Fill in the blanks.

- | | | |
|--------------|-----------|------------|
| 1. Pillars | 2. SDGs | 3. Poverty |
| 4. Education | 5. Goal 5 | |

D. Answer the following questions.

1. SDG 16 aims to guarantee justice and freedom for all people by 2030. The target is to significantly reduce all forms of violence with communities and governments to end conflict and insecurity.

2. SDG 1's target is to end extreme poverty globally by 2030.

AI technology is helping a lot in achieving the first goal of sustainable development because poverty-stricken areas can be easily captured or identified through satellite images. Using these images, the government can easily identify the location of poor people and help them through various schemes in lifting out of poverty.

3. On the basis of different criteria such as context and level of decision-making, the three elements of sustainable development are given below.

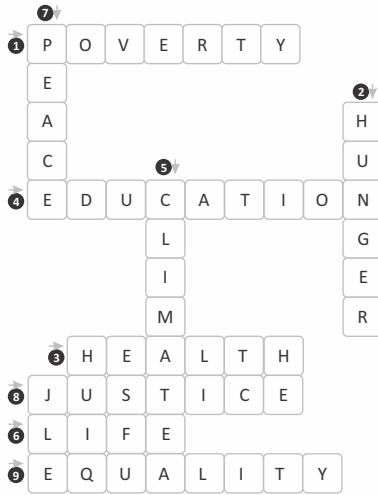
1. Social
2. Economic
3. Environmental

These three elements are interconnected and also known as the pillars of sustainability. These pillars are informally referred to as people, profit and planet. Various topics come under the categories of these three elements.



4.
 - We need to provide equal access to resources.
 - Equal access to education.
 - Equal power and property to women.
5. (a) Sustainable Development Goals
(b) Artificial Intelligence

Fun Activity



HOTS



Goal 4