

Class 7

1. Exploring Number System

Let's Relate (Page-5)

1. 143, 2. 15, 3. 12, 4. 45, 5. 20

Brush Up (Page-10)

1. 2, 2. $(555)_8$, 3. $(101.15625)_{10}$

Exercise

- A.** 1. (a), 2. (b), 3. (d), 4. (b), 5. (d)
- B.** 1. most, 2. Decimal, 3. hexadecimal, 4. 11, 5. 110
- C.** 1. F, 2. T, 3. T, 4. T, 5. T
- D.** 1. The number system is simply a system to represent or express numbers. It is necessary to understand because the design and organization of a computer depends upon the number system. 2. Decimal number system consists of ten digits from 0 to 9. This means that any numerical quantity can be represented using these 10 digits. The base of decimal number system is 10. It is the most usually used number system. Decimal number system is also a positional value system. This means that the value of digits will depend on its position. 3. To change a binary number into decimal number, multiply each binary digit with increasing powers of 2, starting from extreme right digit and then add all of them. 4. The processor of computer performs arithmetic operations only on binary numbers. Thus, we should know how to do binary arithmetic in order to understand the working of processor. Binary arithmetic involves all operations like addition, subtraction, multiplication and division. 5. Binary division is similar to decimal division. It is known as the long division procedure.

The binary division rules are as follows:

Dividend	Divisor	Result
0	1	0
1	1	1
Division by 0 is meaningless.		

Example: **Divide** 1111100 by 10.

Follow the given steps:

Step 1 : Since the zero in the most significant bit position doesn't change the value of the number, let's remove it from both the dividend and divisor. So, the dividend becomes 1111100 and the divisor becomes 10.

Step 2 : Compare the first two numbers in the dividend with the divisor.

Add the number 1 in quotient place and subtract the value, we get 1 as remainder. **Step 3** : Bring down the next number from the dividend portion and do the step 1 process again. **Step 4** : Repeat the process until the remainder becomes zero after comparing the dividend and the divisor values. **Step 5** : When we get the remainder value as 0, we have zero left in the dividend portion, bring that zero to the quotient and the resultant value is equal to 111110.

2. More on Excel 2016

Let's Relate (Page-15)

Do it yourself.

Brush Up (Page-22)

1. Editing group, 2. Sorting, 3. Filtering, 4. Conditional Formatting

Exercise

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

B. 1. Custom Sort option, 2. Editing, 3. Data Bars option, 4. Chart Title, 5. Column

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

D. 1. Sorting is the process of arranging the data in ascending (increasing) and descending (decreasing) order. When sorting information in a worksheet, we can rearrange the data to find values quickly. We can sort a range or table of data on one or more columns of data. To sort the data, follow the given steps: **Step 1** : Select a range or column of data to be sorted. **Step 2** : Click on the **Sort & Filter** command from **Editing** group under the **Home** tab. A drop-down list appears. Select the desired option. **Step 3** : Click on **Sort A to Z** to sort the data in ascending order. The selected data will be sorted according to the names in ascending order. 2. Sorting is the process of arranging the data in ascending (increasing) and descending (decreasing) order. The filter feature allows us to see only those records that we want to see while it hides away the rest of the data temporarily from the view. 3. Conditional formatting sets a cell format according to conditions that we specify. Using this option, we can change the font color, styling etc. of the data in the selected cells. It is easy to highlight certain values or make particular cells easy to identify. 4. A chart is a graphical representation of data in worksheet. It helps to provide a better understanding of large quantities of data. Charts make it easier to draw comparisons and see growth, relationship among the values and trends in data. Excel provides a variety of charts and we can choose from them as per our requirement. **Column Chart**– A column chart is a data visualization where each category is represented by a vertical bar, with the height of the vertical bar being proportional to the values being plotted. Column charts are also known

as vertical bar charts. Such charts are very useful in case we want to make a comparison. **Line Chart**– Line chart is used if we need to show the trend in data. It displays a series of points that are connected over time. Line charts are more likely used in analysis rather than showing data visually. **5.** To change the style of the chart, follow the given steps: **Step 1** : Select the chart whose style we want to change. **Step 2** : Click on the **Design** tab and then click the **More** drop-down button in the **Chart Styles** group. A list of various chart styles appears. **Step 3** : Select the desired chart style from the list. The selected chart style is applied to the chart.

3. More on Adobe Animate CC 2018

Let's Relate (Page-30)

1. Miniclip, 2. BGames, 3. 247 games, 4. Free Online Games, 5. Games ODO

Brush Up (Page-37)

Motion Tween, Shape Tween, Classic Tween

Exercise

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

B. 1. tweening, 2. Motion, 3. Shape, 4. Layers, 5. Delete Layer

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

D. 1. An animation is a technique in which images are put together to appear as moving images. Animation involves a series of still images, usually painted or sketched, displayed in rapid sequence. 2. The movement of an object in between the frames is called tween. 3. There are three types of tween animation in Animate CC — Motion Tween, Classic Tween and Shape Tween. 4. Motion tweening is a type of animation in which we specify the starting and ending positions of an object in keyframes. Shape tween is a type of animation in which we can convert one shape into another shape. 5. Follow these steps to use text in Animate CC: **Step 1** : Click on the **Text Tool** from the **Tools** panel. **Step 2** : From the **Properties** panel select the desired font, font size, text colour, style, letter spacing, alignment option for the text to be written in the text box. **Step 3** : For typing the text, perform any of these steps—

- Click on the stage and start typing. This makes the text box expand in accordance with the amount of text written.
- Draw a rectangle area by dragging the mouse pointer on the stage. This creates a fixed-size text box. Now type the text in this text box. The text will automatically wrap according to the width of the text box.

4. Working with HTML Tags and Attributes

Let's Relate (Page-42)

Google, YouTube, Facebook, Twitter, Wikipedia, Amazon, etc.

Brush Up (Page-46)

1. Color, Size, Face, 2. Align, 3. Size, Width, Align

Exercise

- A.** 1. (d), 2. (d), 3. (c), 4. (b), 5. (a)
B. 1. six, 2. BR, 3. Align, 4. < B >, 5. HR
C. 1. F, 2. T, 3. T, 4. F, 5. F
D. 1. The Heading tag is a container tag used to specify the headings in a web page. A HTML document can have six different sizes of heading from <H1> to <H6>. 2. HTML allows formatting of text by using various tags. These HTML tags are called formatting tags. The following table lists the formatting tags:

Tag	Description
	Used to display the text in bold face.
<I>	Used to display the text in italic type face.
<U>	Used to underline the text.
<Strike>	Used to display the text with a line drawn through it.
<Sub>	Defines subscripted text.
<Sup>	Defines superscripted text.

3. A paragraph can be aligned using the attribute align, that can take any one of the following values: By default, the text is left aligned in an HTML document.

Syntax: <P ALIGN = LEFT> ----- </P>

Align	—	Justify	to make the paragraph alignment justified
Align	—	Left	to left align the paragraph
Align	—	Right	to right align the paragraph
Align	—	Center	to center align the paragraph

4. HR (Horizontal Line) tag is used to generate a horizontal line in the web page. It is an empty element and has no end tag. Type <HR> where we want to the web page into separate section. 5. The Pre tag is used to display a preformatted text in the web browser. It implies that a web browser displays the text in the same manner as specified in the HTML code including the tabs, multiple spaces, line breaks, etc.

Syntax: <PRE>-----</PRE>

5. Lists and Tables in HTML 5

Let's Relate (Page-52)

1. HTML, 2. < Title > tag, 3. < Head > tag, 4. < I > tag, 5. Color attribute

Brush Up (Page-59)

1. Border, 2. Bordercolor, 3. Bgcolor, 4. Align, 5. Height

Exercise

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

B. 1. numbered list, 2. Type, 3. Valign, 4. TR, 5. Cellspacing

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

D. 1. An unordered list is used when the list of items are not to be displayed in any particular order. The individual list items in an unordered list are created using the **LI** tag, which is defined between the opening and closing tags of the **UL** tag. Each item in the list is marked with a bullet that is why unordered list is also known as **bulleted list**. The ordered list is used to display the list of items in a specific order. The individual items of the list are displayed using the **LI** tag, which is defined within the opening and closing tags of the **OL** tag. Each item in the list is marked with number, that is why it is also known as the **numbered list**. 2. A definition list is a list of terms, with a description of each term. It is defined under `<DL>` (definition list) tag. It consists of pairs of **DT** and **DD** tags. `<DT>` tag is used to define the term part and `<DD>` stands for definition description. A definition list starts and ends with a `<DL>` tag. 3. Tables are used to present complex data in a more readable manner in the web page. The data are arranged in the form of rows and columns. In web pages, tables help organize the data, and make it easier to read and interpret. Tables allow proper arrangement of each piece of information in the web page, where each cell of the table can contain text, graphics and links. Thus, tables are a powerful tool for organizing the content of a web page. 4. The Align attribute specifies the alignment of the table across the width of page. By default, a table is left aligned. The alignment can be set to left, centre or right. **Syntax:** `<Table Align = "Center">` 5. The Cellpadding attribute sets the margins within a cell. It sets the amount of space in between the cell border and the cell data. The value of this attribute is indicated in pixel. The Cellspacing attribute is used to set the minimum distance between two adjacent cells. Cellspacing is also measured in pixel.

6. Internet Services

Let's Relate (Page-65)

Do it yourself.

Brush Up (Page-71)

e-shopping, e-reservation, e-banking

Exercise

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

B. 1. search engine, 2. Chatting, 3. Newsgroup, 4. e-shopping, 5. Social networking

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

- D.** 1. Chatting is an online conversation in which we can instantly send messages back and forth to one another.
2. The major components required for video conferencing are:
- (i) Video Input — Video Camera or Webcam
 - (ii) Video Output — Display device (computer monitor, television or projector)
 - (iii) Audio Input — Microphone
 - (iv) Audio Output — Speakers
 - (v) Data Transfer — Analog/digital telephone network or Internet
 - (vi) Data Processing Unit — Computer
3. A blog may be considered as an online diary of a person and may include information in the form of text, graphics, or video. The process of creating, maintaining, writing or adding content to a blog is known as blogging and the person who posts entries onto the blog is called blogger.
4. E-banking stands for electronic banking indicates a process through which a customer is allowed to carry out, personal or commercial banking transactions using electronic and telecommunication network.
5. Social networking refers to grouping of individuals to share their common interests or activities. Nowadays, social networking is gaining popularity and a number of websites (known as social networking sites or social media sites) are available for creating online communities. Some popular social networking websites are : www.twitter.com, www.facebook.com, www.linkedin.com, www.youtube.com, etc.

7. APP Development

Let's Relate (Page-75)

Do it yourself.

Brush Up (Page-79)

1. Pubg, Angry Bird, 2. Facebook, WhatsApp,
3. Google News, Daily Hunt, 4. Vedantu, Khan Academy,
5. Spotify, Pinterest

Exercise

- A.** 1. (d), 2. (c), 3. (b), 4. (a), 5. (d)
- B.** 1. Web, 2. friends, family, 3. Google Play Store, 4. lifestyle, 5. seven
- C.** 1. T, 2. T, 3. T, 4. T, 5. F
- D.** 1. App is a type of software that can be installed and run on a computer, tablet, smartphone or other electronic devices. 2. **Mobile Apps**— These apps developed for specifically hand-held devices such as smartphones and tablets. Some mobile apps come pre-installed on the device while others can be downloaded by users from the application store. Some of

the examples of mobile apps are WhatsApp, Facebook Messenger and Snapchat. **Web Apps**– These apps are stored on a remote server and accessed over the internet through a web browser interface. These apps can be used whenever required from any device through the internet. Some of the examples of web apps are Gmail, Google Maps, etc.

3. Gaming apps are the most important category of app among kids and adults on smart devices. Gaming apps allow us to improve our cognitive skills such as attention and focus. There is a wide range of gaming app that can be downloaded for education and entertainment purpose. The most commonly used gaming apps are Pubg, Angry Bird, Crush Saga and Clue.

4. Utility apps are the applications that a person would use in a day-to-day life to perform certain activities such as paying the bills, booking a cab, checking weather condition, and sharing files. The functionality of these apps will vary according to the target audience. These apps are used as helpful tools. The most commonly used utility apps are Pdf Utility, Google Translate, Smart Tool and Google Lens.

5. To download and install an app from the Google Play Store, follow the given steps: **Step 1** : Click on the **Play Store** icon on the screen of the device. The home screen of the Google’s Play Store appears. **Step 2** : In the Search bar, type the name of the app that we want to download. If we do not know the specific name, type the keyword related to the app. **Step 3** : A list of related apps appears. Now, select the most suitable one by tapping on the name of the app. **Step 4** : Before installing the app check that the app is reliable, find out what other people say about it. Under the app’s title, check the star ratings and the number of downloads. **Step 5** : If it meets our requirements, tap the **Install** button to install the app on our device. The app will request us for the permission to access certain information from our device. Confirm the consent and the app will be downloaded and installed on our device.

8. Decision Making Statements in Python

Let’s Relate (Page-75)

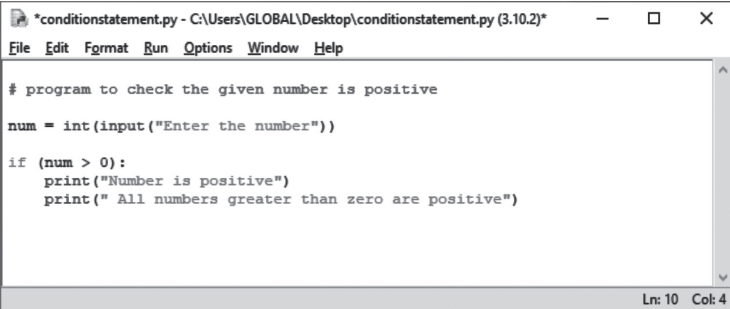
Start; Enter the year; If year % 400 == 0, Print “Leap Year”; Else Print “Not Leap Year”; Stop.

Brush Up (Page-90)

Do it yourself.

Exercise

- A.** 1. (c), 2. (b), 3. (b), 4. (d), 5. (a)
- B.** 1. If statement, 2. True, not, 3. if ...else, 4. true, 5. If ... Elif ... Else statement
- C.** 1. F, 2. T, 3. T, 4. T, 5. F
- D.** 1. Decision making statements allow us to decide the order of execution of specific statements in our program.

2.  *conditionstatement.py - C:\Users\GLOBAL\Desktop\conditionstatement.py (3.10.2)*

```
File Edit Format Run Options Window Help

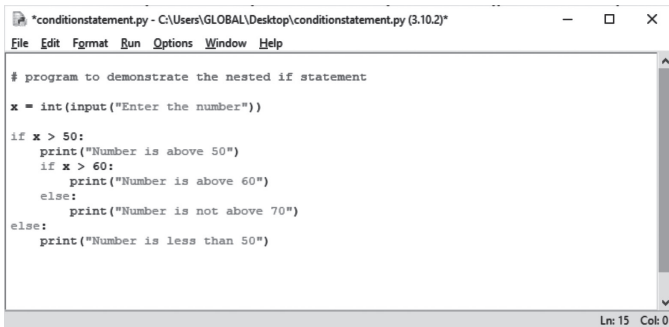
# program to check the given number is positive

num = int(input("Enter the number"))

if (num > 0):
    print("Number is positive")
    print(" All numbers greater than zero are positive")

Ln: 10 Col: 4
```

3. Nested if statement means the if intended block inside another if-else intended block. Any number of these statements can be nested inside one another. n nested if, the inner if block condition executes only when outer if block condition is true. **For example**, To demonstrate the nested if statement.



```
*conditionstatement.py - C:\Users\GLOBAL\Desktop\conditionstatement.py (3.10.2)*
File Edit Fgmat Run Options Window Help

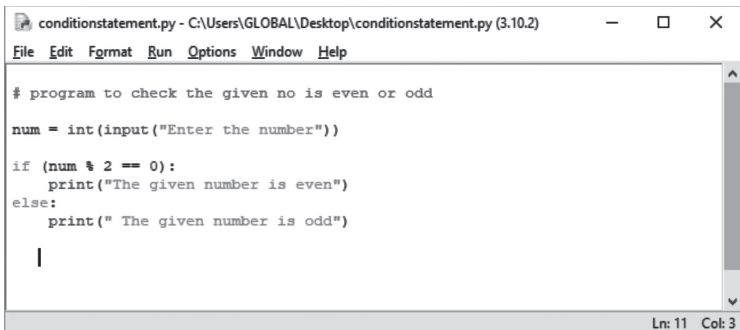
# program to demonstrate the nested if statement

x = int(input("Enter the number"))

if x > 50:
    print("Number is above 50")
    if x > 60:
        print("Number is above 60")
    else:
        print("Number is not above 70")
else:
    print("Number is less than 50")

Ln: 15 Col: 0
```

4. The if...else statement is used to perform two operations for a single condition. The if...else statement is an extension to the if statement using which, we can perform two different operations, i.e. one is for the correctness of that condition, and the other is for the incorrectness of the condition. **For example**, To check the given number is even or odd.



```
conditionstatement.py - C:\Users\GLOBAL\Desktop\conditionstatement.py (3.10.2)
File Edit Format Run Options Window Help

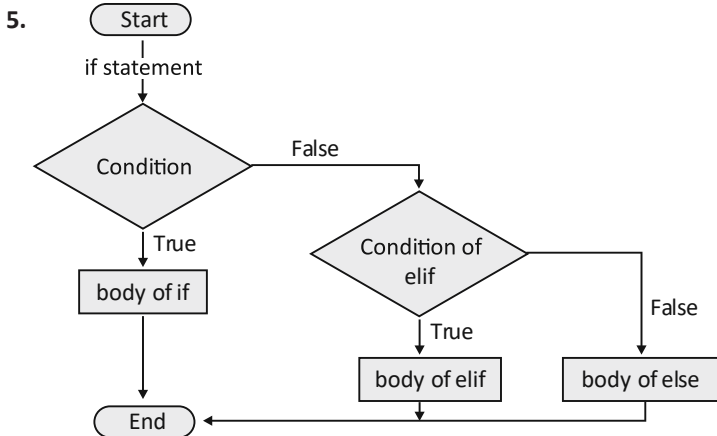
# program to check the given no is even or odd

num = int(input("Enter the number"))

if (num % 2 == 0):
    print("The given number is even")
else:
    print(" The given number is odd")

|

Ln: 11 Col: 3
```

9. Iterative Statements in Python

Let's Relate (Page-96)

1. John G. Kemeny and Thomas Kurtz,
2. Microsoft Corporation,
3. Mitchel Resnick and David Siegal,
4. Bjarne Stroustrup,
5. James Gosling

Brush Up (Page-98)

```

print ('Numbers from 1 to 100:')
n = 1
while n <= 100
print (n, end = ' ')
n = n + 1
  
```

Exercise

- A.** 1. (b), 2. (b), 3. (a), 4. (b) 5. (d)
- B.** 1. looping, 2. two, 3. break, continue, 4. break, 5. continue
- C.** 1. F, 2. F, 3. F, 4. T, 5. F
- D.** 1. The statements that are used to repeat the task in programming called iterative statements or loops. 2. The while loop is used to execute a set of statements repeatedly until a given condition is true. The for loop is used to iterate over a sequence such as a list, a table, a dictionary, a string or other iterable objects like range. 3. A nested loop means a loop inside a loop. The "inner loop" will be executed one time for each iteration of the "outer loop". In Python, different nested loops can be formed using for and while loops. 4. The jump statement in Python, is used to unconditionally transfer the control from one part of the program to another. There are two jump statements in Python — break and continue. 5. In Python, the break statement is used for bringing the program control out of the loop. With

the break statement, we can stop the loop even if the while condition is true. The continue statement is used inside loops. With the continue statement, we can stop the current iteration of the loop, and continue with the next iteration of the loop.

10. Artificial Intelligence for Sustainable Development Goals

Let's Relate (Page-108)

Smart Lock, Smart Speaker, Robot

Brush Up (Page-112)

7, 11, 9, 6, 3

Exercise

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

B. 1. neural, 2. inequalities, 3. AI system, 4. demarcation, 5. principles, values

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

D. 1. The Sustainable Development Goals are a collection of 17 interlinked global goals designed to be a “Shared blueprint for peace and prosperity for people and the planet, now and into the future”. The 17 SDGs are integrated — that is they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. 2. The 17 Sustainable Development Goals (SDGs) to transform our world are as follows: (i) No Poverty, (ii) Zero Hunger, (iii) Good Health and Well-Being, (iv) Quality Education, (v) Gender Equality, (vi) Clean Water and Sanitation, (vii) Affordable and Clean Energy, (viii) Decent Work and Economic Growth, (ix) Industry, Innovation and Infrastructure, (x) Reduced Inequalities, (xi) Sustainable Cities and Communities, (xii) Responsible Consumption and Production, (xiii) Climate Action, (xiv) Life Below Water, (xv) Life On Land, (xvi) Peace, Justice and Strong Institutions, (xvii) Partnerships for the Goals.

3. No Poverty (SDG – 1): AI can filter out the needy ones based on the region demarcation with the required precision, which can help the government go hyperlocal and have targeted and much-informed strategy to help them. The social organization involved in poverty alleviation measures can use AI tools to effectively deliver the aids in the right location, helping the real needy people eventually. **Zero Hunger (SDG – 2):** Artificial intelligence can transform existing food and agricultural systems, rendering them more efficient. AI-based early warning systems can flag food shortages, helping decision makers avert situations such as those leading to malnutrition. **4.** AI can be used to spot inequalities in legal practices and regulations, to be able to create new and equal foundations because AI tools do not have any emotions.

They can produce the results better than other tools. For example : AI used by social media websites to show up the contents of users' interest in his profile. Another example is job creation using AI tools. **5.** There is a growing number of AI applications in the environmental sector, including those within the energy (eg. smart grids), agricultural, and monitoring sectors. This is made possible by the recent advances in IoT hardware and the accompanying AI algorithms in vision and sensor fusion. AI can impact on following SDGs related to the environment: **Climate action (SDG – 13):** AI can be useful in generating an alert in climatic situations. It can produce the alerts and warn the concerned department about climate change and leads to act accordingly. **Life below water (SDG – 14):** The life below water like animals living under the sea, under the river plays an important role in maintaining temperature and makes the earth suitable for all of us. AI can impact on these by recording their needs and improve the supply chain. AI can be a lifeguard in keeping track of the status of marine resources, to help prevent and reduce pollution (like oil) in our oceans. **Life on Land (SDG – 15):** With AI, desertification can be more easily detected. To help plan, prevent, and reverse trends by identifying significant parameters. AI systems can be helpful for life on land as well. It can promote the use of ecosystems through various platforms like social media, search engines, and so on.