



Supervising Examiner / Invigilator's Initial

**SCHOOL NAME :**

**Year: 2022**

## Administrative No.

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**FOR OFFICIAL USE ONLY**

For Marker's USE only							
Section	Question	Full Marks	Award	Marker Initial	Cross Checker Initial	Change, if any	Marker Initial
A	1	20					
	2	5					
	3	5					
B	4	20					
	5	5					
	6	5					
	7	5					
	8	5					
	9	5					
	10	5					
				Chief Marker's Initial			Chief Marker's initial
TOTAL							

**IMPORTANT:** Turn over to read instructions.

## READ THE FOLLOWING DIRECTIONS CAREFULLY

1. **Do not** write for the first **fifteen minutes**. This time is to be spent on reading the questions. After having read the questions, you will be given **two hours** to answer all the questions.
2. In this paper, there are two sections: **A** and **B**. All the questions in this paper are **compulsory**. Section A has objective type questions: Multiple Choice Questions (MCQ), Completion Questions and True or False questions. Section B has Short Response Questions (SRQ) and Extended Response Questions (ERQ).
3. **Read and re-read carefully** to understand the **instructions and questions** before answering them.
4. **Writing neatly and clearly** will always go well in **your favour!** If your writing cannot be read – **marks can't be awarded**.
5. **Do not** remove or tear off any page from the booklet.
6. **Do not** draw lines or pictures on or in the booklet unless specified by the questions. **Marks can be deducted** for any **Not-Called-For** scribbling, sketching, commenting etc. written in your answer booklet.
7. **Do not** leave the examination hall before you have made sure that you have answered all the questions.
8. The cover page has **BARCODE**. **Do not** mutilate, fold or put any mark on them. **DO NOT** remove the cover page from the booklet. If you do so, your answers will not be evaluated.
9. Electronic devices such as calculator or computer are **NOT** allowed to use in this paper.

## SECTION A (30 MARKS)

### Question 1

[10 x 2 = 20 Marks]

**Direction:** For each question, there are **FOUR** responses: **A, B, C** and **D**. Choose the corresponding letter of your response and **CIRCLE** it neatly. **NO** score will be awarded if you circle more than one.

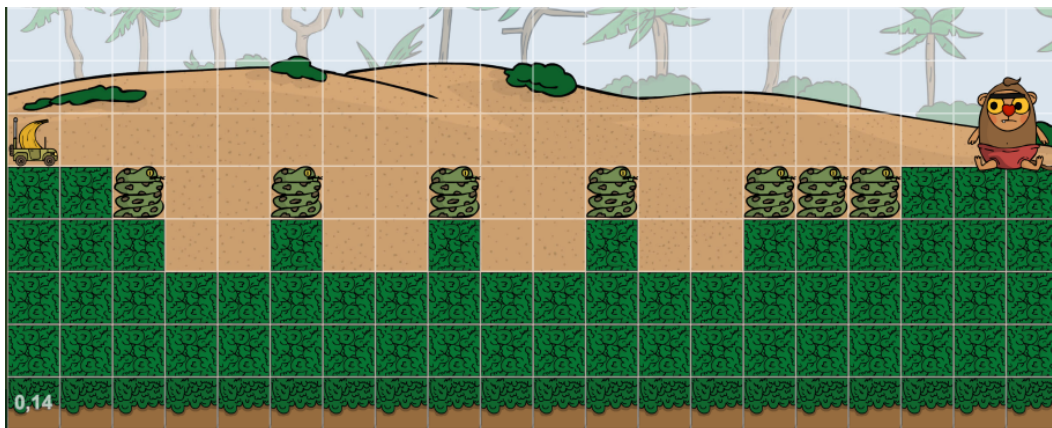
- i) Pema wants to use the following data in the PowerPoint presentation to share hobbies of students in her class. Which feature in the PowerPoint would you suggest her to use to convey the message appropriately?

Reading - 12, Singing - 6, Dancing - 3, Drawing - 3, Sports - 8, Music - 4

- A     Table
- B     Charts
- C     SmartArt
- D     Animation

- ii) What should be the value for Y in the codes given below so that the bridge can be formed by the snakes for the banana to reach to the baby monkey?

```
1 for index in range (Y) :
2     snakes[index].length = 3
```

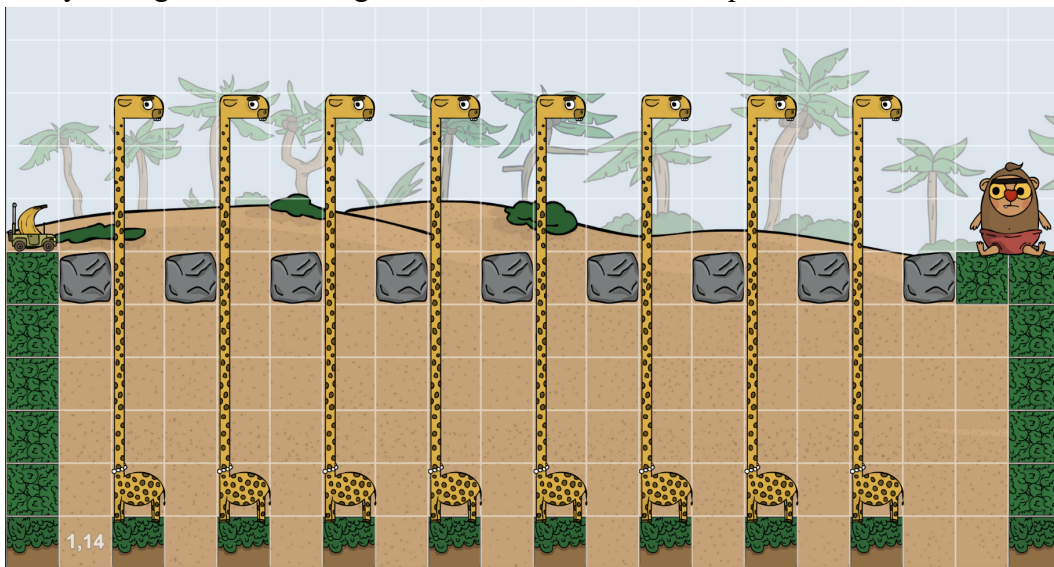


- A     7
- B     6
- C     5
- D     4

iii) Blogging refers to writing, photography, and other media that individuals publish online on a regular basis. Identify the statement from the followings that **DOES NOT** describe blogging.

- A. Anyone with access to the Internet can start a blog.
- B. Others who read the blogs can give comments.
- C. Someone who writes blogs is called a writer.
- D. Money can be made out of blogging.

iv) Study the figure and codes given below and answer the question.



1	for giraffe in giraffes:
2	giraffe.height = X

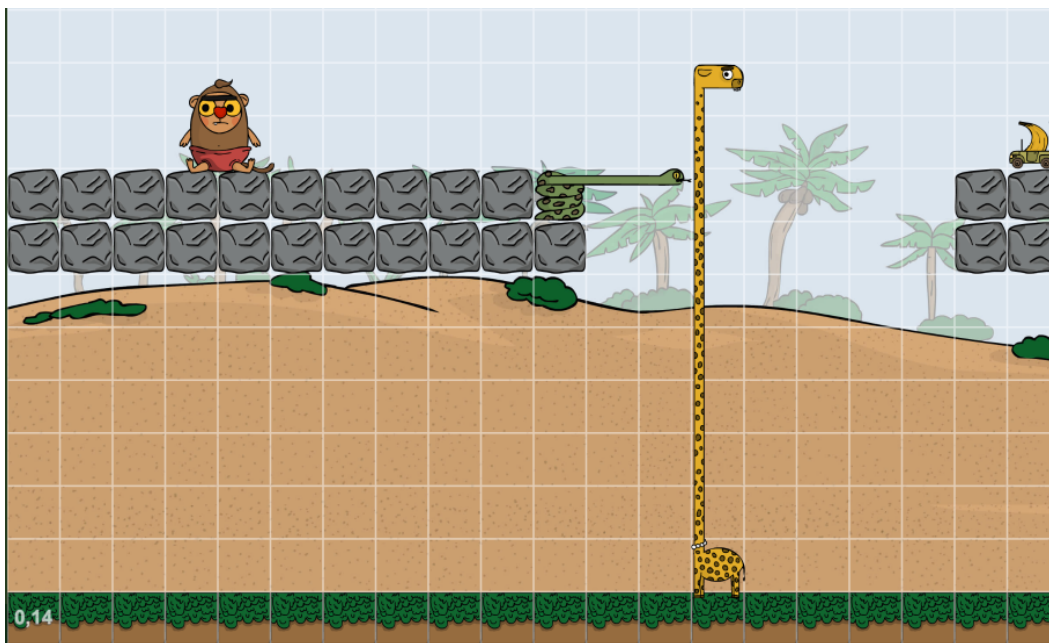
What should be the value of X in the above code for the banana to reach the baby monkey?

- A 5
- B 6
- C 7
- D 8

- v) Dema's mother has recently started to use the Internet through her mobile phone. However, she is not aware of the digital footprint. Which one of the following statements will raise her awareness?
- A. Digital footprint is not as important as what people who know you in real life think.
  - B. Digital footprint is not something to be taken lightly and you should make efforts to leave positive experiences.
  - C. Digital footprint does not matter, because the Internet changes too often for anything to remain for a long time.
  - D. Digital footprint is not too important, because everybody's got something embarrassing or unique online by now.
- vi) How can you use your social media profile to develop a positive online presence, which could potentially benefit you in the future?
- A. Think of who might look at your online profile in the future, like college admissions tutors or employers.
  - B. Anything you post is fine since you can delete it when you don't want it on your page anymore.
  - C. Use social media to showcase how much fun you are by posting lots of pictures of you at parties.
  - D. Use social media to make as many friends as possible.
- vii) The public service delivery initiative - G2C that uses ICT as a medium is one of the key activities of the government to strengthen public services. The followings services are available in G2C website **EXCEPT**:
- A. Online banking
  - B. Audit clearance
  - C. Police clearance
  - D. Land tax payment

viii) Study the figure and the codes given below and answer the following question.

1	<code>giraffe_1.height = X</code>
2	<code>snake_1.length = Y</code>



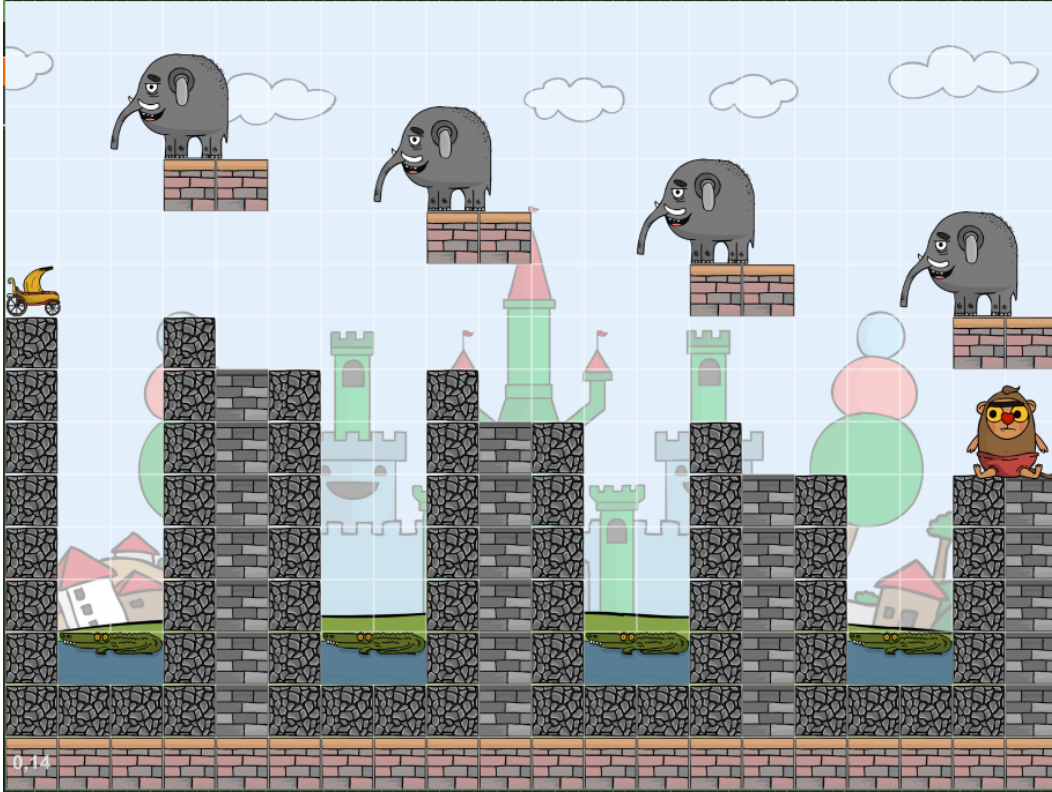
What should be the value of X and Y in the above code for the banana to reach the baby monkey?

- A. 10, 5
- B. 9, 6
- C. 8, 7
- D. 7, 8

ix) A student has been asked to create a video for the Teacher's day on May 2. Identify the correct video production process from the followings to create the video.

- A. Pre-production → Post-production → Distribution → Production
- B. Pre-production → Production → Post-production → Distribution
- C. Production → Pre-production → Post-production → Distribution
- D. Post-production → Distribution → Pre-production → Production

- x) The four wells given in the figure below has to be filled with water by the elephant so that the banana reaches to the baby monkey. What should be the condition for the **while** loop in the given code to complete this task?



```
1 for x in range(len(wells)) :  
2     while _____ :  
3         elephants[x].spray_at(wells[x])
```

- A. wells[x].water\_level < wells[x].max\_water\_level
- B. wells[x].water\_level > wells[x].max\_water\_level
- C. wells[x].water\_level = wells[x].max\_water\_level
- D. wells[x].water\_level != wells[x].max\_water\_level

## Question 2

State whether the following statements are True or False in the space provided. [1 x 5 = 5 Marks]

Statements	True/False
i. The file extension for PowerPoint file is .pptx and such files cannot be opened by using other programs such as MS Word or Excel.	
ii. Facebook is a good example of a blogging platform.	
iii. Employers often look for information about applicants online. Therefore we should post regularly on social networking sites so that your old posts get buried.	
iv. We can use the G2C online service to get the class X & XII board examination certificates.	
v. The process of video editing require video makers to edit images, audio and text in addition to the recorded videos.	

## Question 3

Complete the following statements with the most appropriate word. [1 x 5 = 5 marks ]

- In designing PowerPoint slides for a presentation, you can add a same image in all the slides at once by making changes in the slide \_\_\_\_\_
- Some companies maintain a blog in addition to their website. They add a blog section to the company website. The purpose of having a blog is to the gather \_\_\_\_\_
- The use of social media like Facebook and other online platforms such as Youtube, Twitter, LinkedIn and blogs to portray you as individual through your work or content is referred to as \_\_\_\_\_
- Every government must ensure that quality public services are provided to its citizens within the shortest possible time. Therefore, use of \_\_\_\_\_ to deliver the services has to be encouraged in the 21st century.
- In video making process, the adding of title, musics and correction of colour or audio happens during the \_\_\_\_\_ stage.



## SECTION B (50 MARKS)

### Question 4

- a. You work at the Bank of Bhutan and your team has been instructed to make a monthly report using a PowerPoint presentation to the management team. Mention **TWO** design principles with examples that you would use to create a good presentation. [2 Marks]

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- b. In 2015, Kuensel reported that “*the need to redefine Bhutanese journalism and the rise of social media, were some of the topics of discussion in the second bloggers conference held at the Paro College of Education in Paro*”. How can bloggers address the issues related to the rise of social media in Bhutan? State **TWO** points. [2 Marks]

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- c. *A study conducted by Bhutan Media Foundation in 2020 showed 90 percent of Bhutanese people are on social media, spending 163 minutes on average daily. Facebook is the most widely used platform. The study also found that most people are on social media to seek information and entertain themselves. Many users, however, shared their negative experience of social media was indecent posts.*

Based on the above statement, mention **TWO** ways on how you would respond to negative experiences such as indecent posts on social media. [2 Marks]

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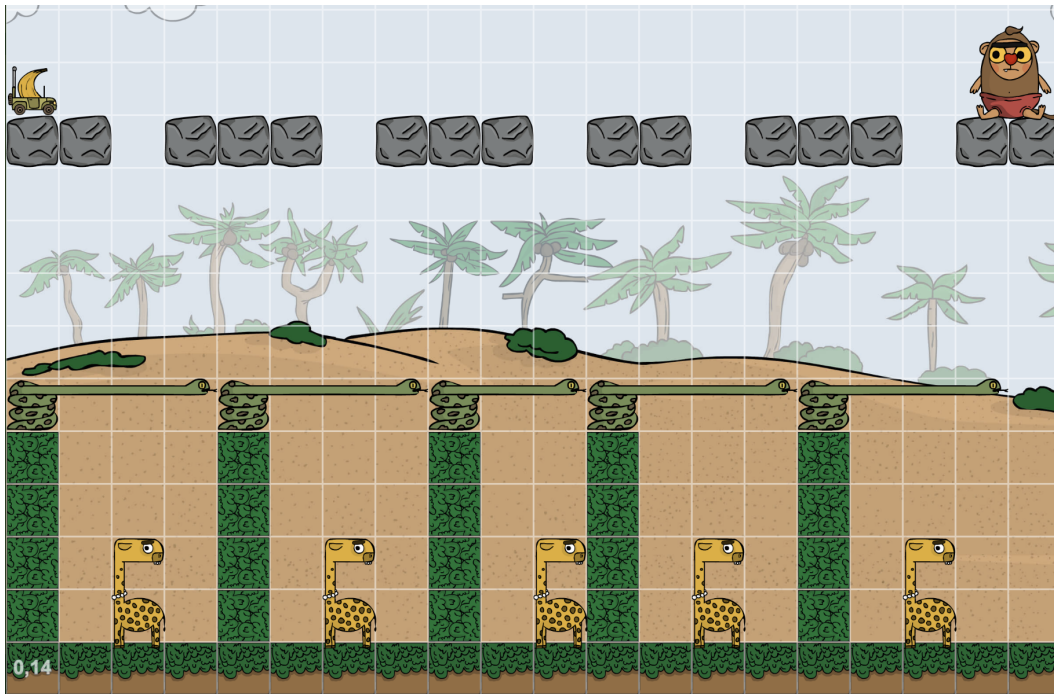
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- d. Study the problem given in the figure below. Write a program using **for loop**, **index** and **range** to solve the problem. [2 Marks]



# Write your codes below

- e. Study the following codes from the Coding Chatbot and answer the questions [2 Marks]



### chatbot.py

```
1  send_message("Start guessing a letter")
2  # Use read_message to read the player's response
3  guess = read_message()
4  send_message("You have guessed the letter:")
5  # Use send_message to send the letter the player guessed
6  # so it is displayed in the chat screen
7  send_message(guess)
```

- i. What is the difference between the send\_message( ) and read\_message( )?

[1 Mark]

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- ii. Why are some texts written after the # symbol? What will happen to these texts when you run the program?

[1 Mark]

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- f. The following statement is taken from the G2C website.

*Public Service Delivery (PSD) Initiative is one of the key activities within the Government's efforts to strengthen delivery of public services through the ICT medium. The momentum began with the G2C Initiative, which began as a project in 2010. The G2C Project Office (2010-2013) studied and reviewed core public services offered by agencies (Ministries and Autonomous agencies).*

Give **TWO** reasons with examples on why the government initiated the G2C services to the people of Bhutan.

[2 Marks]

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g. Study the code given below in Coding Chatbot and complete the following questions.

 chatbot.py

```
1 word = "snowman"
2 word_length = "seven"
3 send_message("The length of the word you need to guess is " + word_length)
4 guess = read_message()
5 send_message(guess + " is the letter you have guessed")
6 send_message("The letter " + guess + " is not in the word " + word)
```

i. List the variables used in the above codes. [0.5 Marks]

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ii. What is the function of the “+” symbol and what is it called in coding language? [1 Mark]

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iii. Write the output generated from line number 6 when the value for *guess* is “P”. [0.5 Mark]

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- h. In photography and video making, one of the widely used techniques to get viewers attention on the subject is “The Rule of Thirds”. What do you understand by the Rules of Thirds? Draw a grid to explain. [2 Marks]

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- i. Study the code given below in Coding Chatbot and complete the following questions.



#### chatbot.py

```
1  send_message("Enter the letters of your name")
2  send_message("Enter one letter at a time")
3  send_message("Press send after each letter")
4  |
5  name = ""
6
7  letter = read_message()
8  name += letter
9
10 letter = read_message()
11 name += letter
12
13 letter = read_message()
14 name += letter
15
16 letter = read_message()
17 name += letter
18
19 send_message("My name is " + name)
```

i. How many inputs are taken from the users? [1 Mark]

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ii. Explain what is happening in the codes from line number 5 to 17. [1 Mark]

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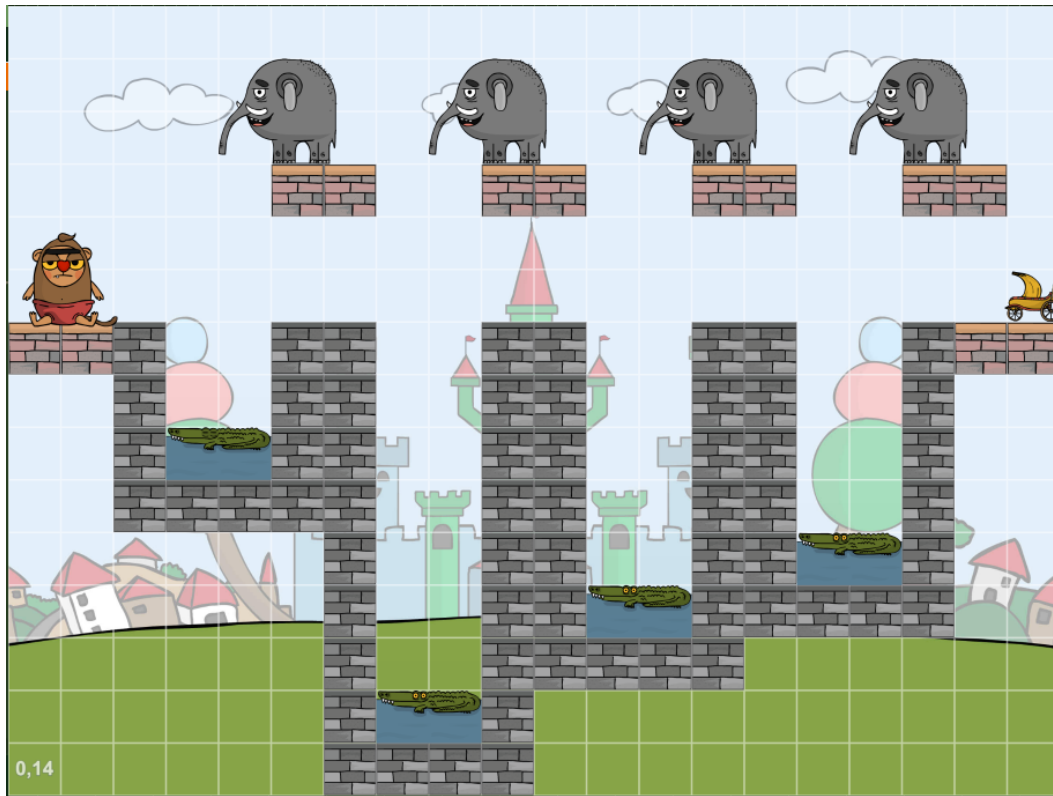
j. There are bugs in the program given below. Study the program carefully and rewrite the codes wherever required to get the expected output without changing the number of lines of code. [2 Marks]

Code	<pre>mark == 77 if mark &lt; 70:     print("Your mark is qualified") else     print(Your mark is disqualified)</pre>
Output	Your mark is qualified

# Write your codes below	
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### Question 5

Study the figure given below and answer the questions that follow.



- 1) For the banana to reach to the monkey, the wells have to be filled with water. Define a function "fill\_well" which takes "elephant" and "well" as the parameters. The fill\_well function will be used to fill up the wells. You can use the following terms in your codes. [3 Marks]

```
well.water_level - Level of water in the well
well.max_water_level - Maximum water level in the well
elephant.spray_at(well) - Elephant pour water in the well
```

```
# Write your codes below
```



- 2) To fill the second well with water, write a code where you use the function `fill_well()` that you have defined above. You can use the following terms in your codes. [2 Marks]

```
elephant_2 - Elephant 2
well_2 - Well 2
```

```
# Write your codes below
```

### Question 6

- a. The codes given below are not in correct order. The desired output of the program is given at the end. Rearrange the codes in correct order to get the given output. Apply proper indentation wherever required. The number of lines and the code must not change. [2 Marks]

1	<code>sum = sum + 5</code>
2	<code>sum = sum + n</code>
3	<code>print(sum)</code>
4	<code>for n in range(5):</code>
5	<code>sum = 10</code>
1	
2	
3	
4	
5	
<b>Output:</b> 25	

b. Study the code given below and complete the trace table.

[3 Marks]

1	sum = 10
2	for n in range(5):
3	sum = sum + n

Fill in the empty cells with the correct values.

Step	Value of n	Condition	Value of sum	sum = sum + n
1	0	$0 < 5 = \text{True}$	10	sum = 10 + 0
2	1		10	
3	2	$2 < 5 = \text{True}$		
4			13	sum = 13 + 3
5			16	
6				

### Question 7

Study the figure and codes given below and answer the questions that follow.



1	class Drill:
2	def __init__(self):
3	self.x = 2
4	self.y = 13
5	
6	def drill_right(self):
7	self.x = self.x + 2
8	
9	drill_1 = Drill()
10	
11	# Drill a brick.
12	drill_1.drill_right()
13	
14	# Drill another brick.
15	drill_1.drill_right()

1. How many methods are there in the class "Drill"? What are they?

[2 Marks]

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2. What will happen if the code "drill\_1 = Drill()" is missing in the program?

[1 Mark]

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3. Why are "self.x" and "self.y" initialised with values 2 and 13 respectively?

[2 Marks]

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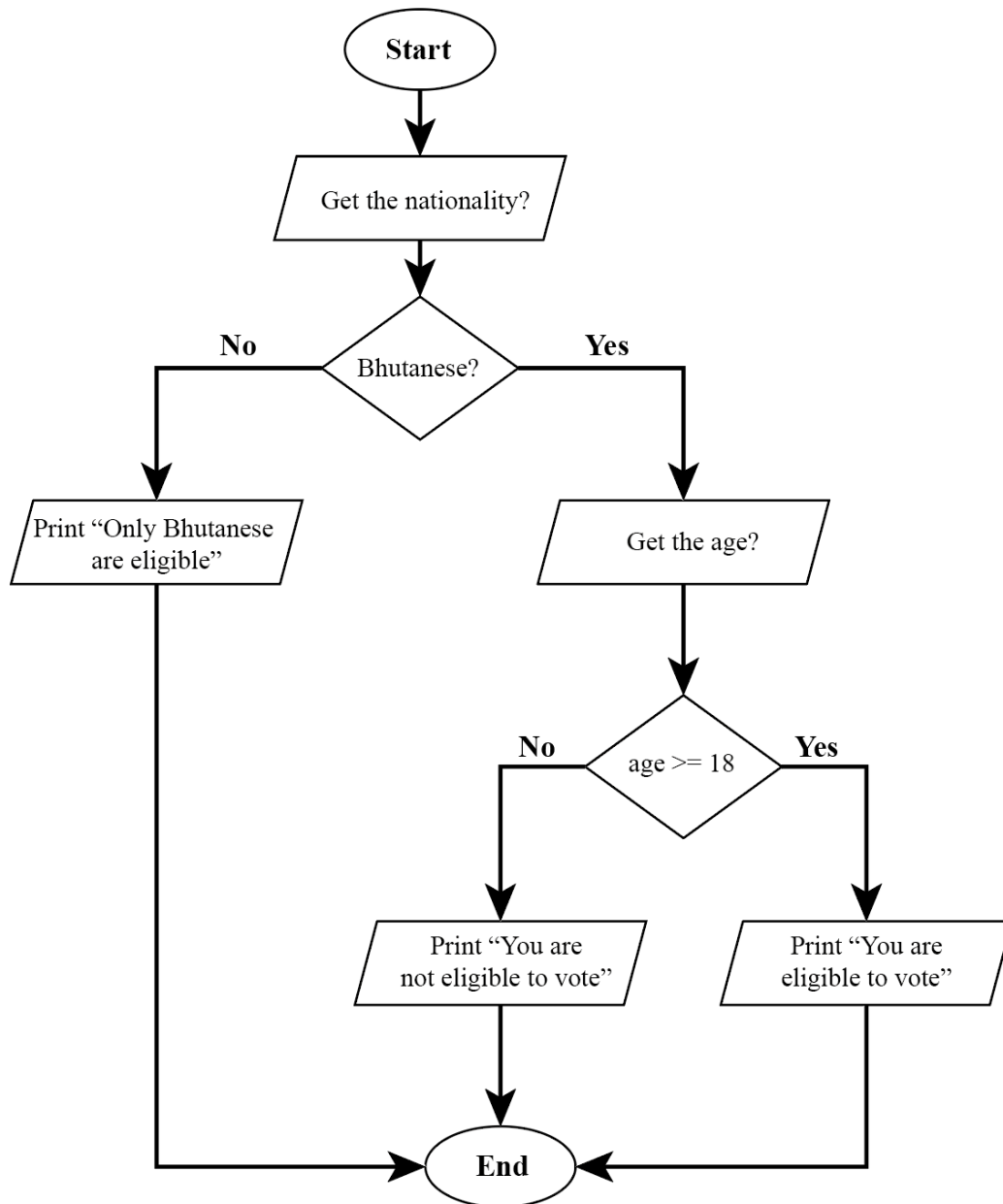
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### Question 8

The following flowchart has been developed by the ICT officer at the Election Commission of Bhutan (ECB) for a program to validate voters for the 2023 national election. Study the flowchart carefully and complete the questions that follows.



1. Write a program based on the above flowchart. You may use variables, if-else conditions, print and input functions in your program. [3 Marks]

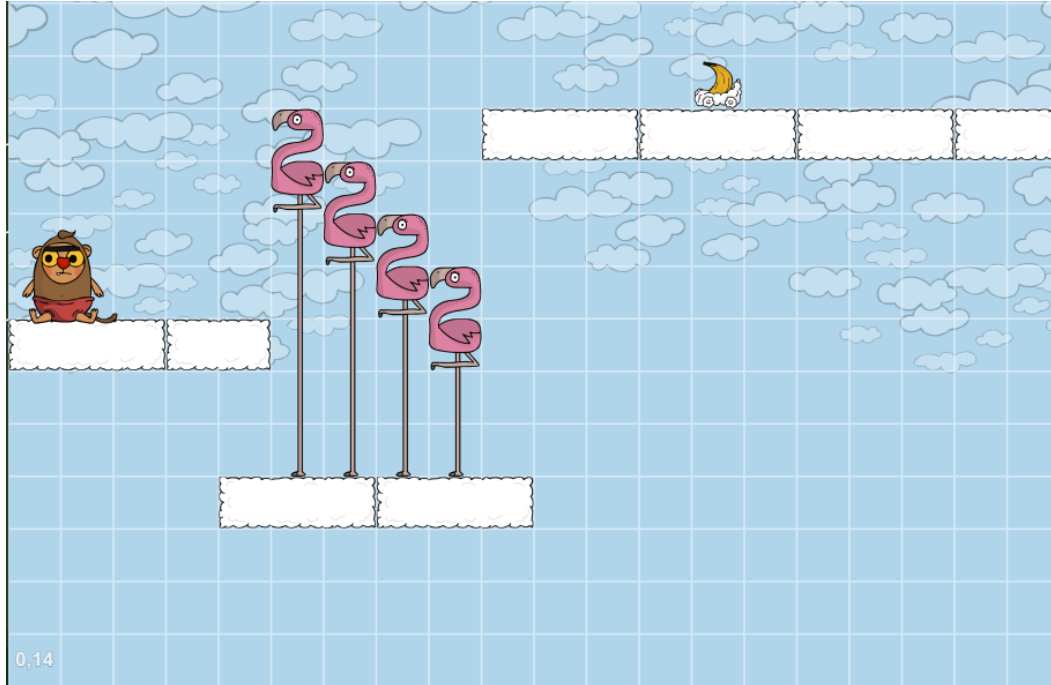
# Write your codes below	
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2. In the flowchart, which are decision making blocks? Explain why you consider them as decision making blocks? [2 Marks]

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### Question 9

In the figure below, there are four flamingos arranged in decreasing height from left to right. You are required to sort them in ascending order from left to right so that the banana can reach to the baby monkey. Based on this context, complete the following questions.



1. Define a function to switch the position of two flamingos. You may use the following terms in your code. [2 Marks]

```
switch - name of the function
switch_list - list containing the flamingos
switch_list[index_1] - first item in the list
switch_list[index_2] - second item in list
temp - temporary variable
```

<pre># Write your codes below</pre>	
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2. How many independent **for** loops do you need to sort the flamingoe's height in ascending order? Why? [1 Mark]

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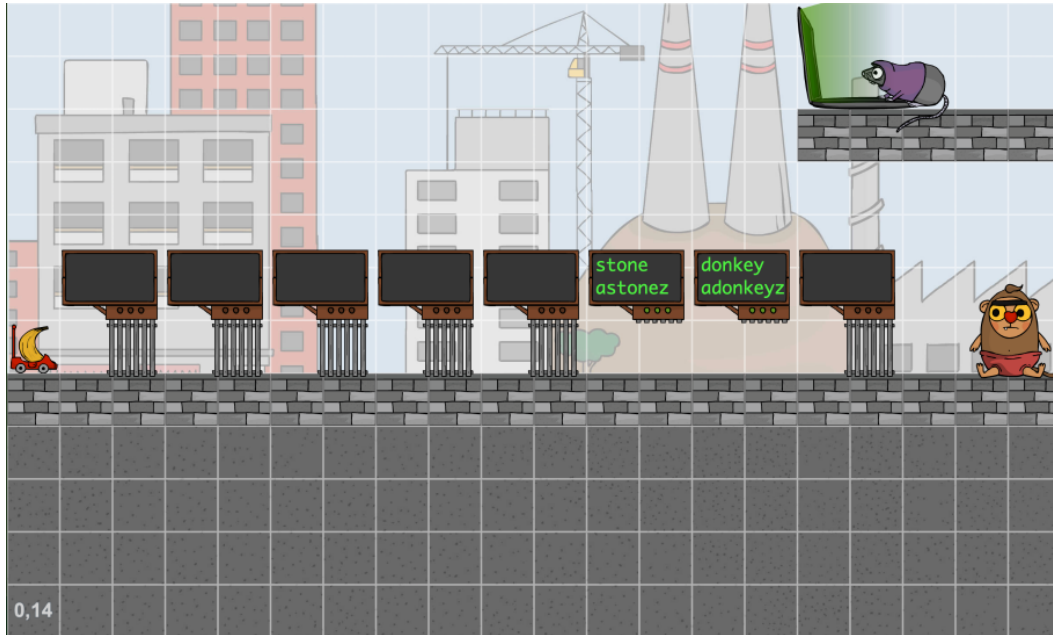
3. Write the codes for the first **for** loop. First line has been written for you. Use the terms and codes given below for the task. [2 Marks]

<pre>flamingos[X].height - height of the flamingo X switch - function to switch the position of flamingo</pre>
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<pre># Write your codes below total_flamingos = len(flamingos)</pre>	
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### Question 10

In the figure given below, there are 6 gates that need to be opened for the banana to reach the baby monkey. To open the closed gates, you need to get the password from the rat who has stored it in a dictionary. The gate name and password for 6th and 7th are displayed. Based on this context, complete the following questions.



Use the terms and codes given below to solve question 1 and 2.

```
codes_and_passwords - python dictionary containing codes and password
rat.get_passwords() - get password based on code
codes_and_passwords[gates[X].code] - get password for gate X based on code
gates[X].code - get code of the gate X
password - password for gate X
codes_and_passwords[gate.code] - get password based on code
gate.open(password) - open gate based on password
```

1. If the password for the 8th gate is not there in the rat's dictionary, write the code to generate the password for the gate. The first line has been written for you. [2 Marks]



<pre># Write your codes below  codes_and_passwords = rat.get_passwords()</pre>	
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2. Write the codes to open the first five gates. The first line has been written for you.

[3 Marks]

<pre># Write your codes below  for gate in gates:</pre>	
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