Chapter 6
Control Structures

PART – I
I. Choose The Best Answer

Question 1.
How many important control structures are there in Python?
(a) 3
(b) 4
(c) 5
(d) 6
Answer:
(a) 3

Question 2.
elif can be considered to be abbreviation of ……
(a) Nested if
(b) If … else
(c) Else if
(d) If …… Else
Answer:
(a) Nested if

Question 3.
What plays a vital role in Python programming?
(a) Statements
(b) Control
(c) Structure
(d) Indentation
Answer:
(d) Indentation

Question 4.
Which statement is generally used as a placeholder?
(a) Continue
(b) Break
(c) Pass
(d) Goto
Answer:
(c) Pass

Question 5.
The condition in the if statement should be in the form of ……..
(a) Arithmetic or Relational expression
(b) Arithmetic or Logical expression
(c) Relational or Logical expression
(d) Arithmetic
Answer:
(c) Relational or Logical expression

Question 6.
Which is the most comfortable loop?
(a) do..while
(b) While
(c) For
(d) if….elif
Answer:
(c) For

Question 7.
What is the output of the following snippet?
i = 1
while True:
if i % 3 = 0:
break
print(i, end = ‘’)
i + = 1
(a) 12
(b) 123
(c) 1234
(d) 124
Answer:
(a) 12

Question 8.
What is the output of the following snippet?
T = 1
while T: print(True)
break
(a) False
(b) True
(c) 0
(d) No output
Answer:
(d) No output

Question 9.
Which amongst this is not a jump statement?
(a) For
(b) Goto
(c) Continue
(d) Break
Answer:
(a) For

Question 10.
Which punctuation should be used in the blank?
if _
statements – block 1
else:
statements – block 2
else:
(a) ;
(b) :
(c) ::
(d) !
Answer:
(b) :

PART – II
II. Answer The Following Questions

Question 1.
List the control structures in Python?
Answer:
There are three important control structures

1. Sequential
2. Alternative or Branching
3. Iterative or Looping

Question 2.
Write note on break statement?
Answer:
The break statement terminates the loop containing it. Control of the program flows to the statement immediately after the body of the loop.

Question 3.
Write is the syntax of if .. else statement?

Answer:
Syntax:
if:
statements – block 1
else:
statements – block 2

Question 4.
Define control structure?
Answer:
A program statement that causes a jump of control from one part of the program to another is called control structure or control statement. As you have already learnt in C++, these control statements are compound statements used to alter the control flow of the process or program depending on the state of the process.

Question 5.
Write note on range 0 in loop?
Answer:
Usually in Python, for loop uses the rangeQ function in the sequence to specify the initial, final and increment values. rangeQ generates a list of values starting from start till stop – 1.

PART – III
III. Answer The Following Questions

Question 1.
Write a program to display?
A
A B
A B C
A B C D
A B C D E
Answer:
Program code: for i in range(1, 6):
for i in range(65, 65 + i)
a = chr (j)
print a
print

Question 2.
Write note on ifi.else structure?
if .. else statement
Answer:
The if., else statement provides control to check the true block as well as the false block.

Following is the syntax of 'if.else' statement.
Syntax:
if:
statements – block 1
else:
statements – block 2

Question 3.
Using if..else..elif statement write a suitable program to display largest of 3 numbers.
Display Largest of 3 Numbers?
Answer:
num 1 = int (input("Enter first number : "))
num 2 = int (input("Enter second number : "))
num 3 = int (input("Enter third number : "))
if (num 1 > num 2) and (num 1 > num 3):
largest = num 1
elif (num 2 > num 1) and (num 2 > num 3):
largest = num 2
else:
largest = num3
print ("The largest number is", largest)
Output:
Enter first number: 7
Enter second number: 5
Enter third number: 4
The largest number is 7

Question 4.
Write the syntax of while loop?
Answer:
The syntax of while loop in Python has the following syntax:
Syntax:
while:
statements block 1
[else:
statements block 2]

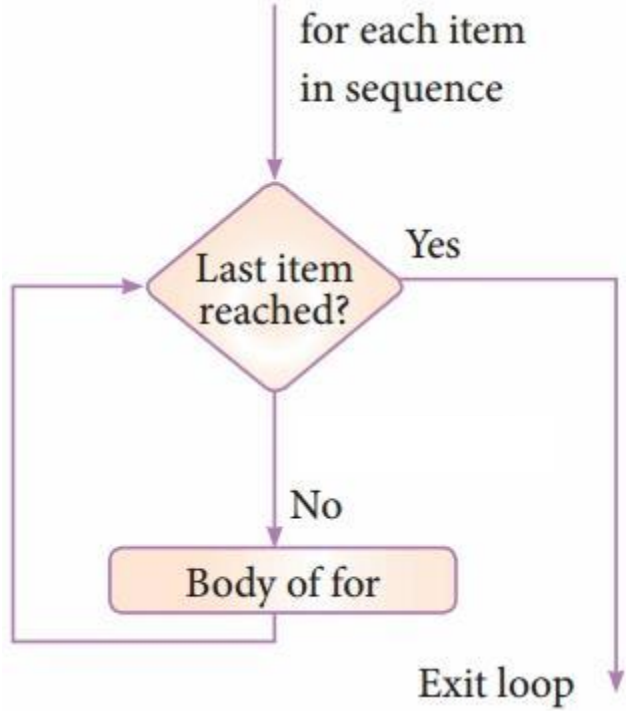
Question 5.
List the differences between break and continue statements?
Answer:
Break statement:
Break statement has even skipped the 'else' part of the loop and has transferred the control to the next line following the loop block.

Continue statement:
Continue statement unlike the break statement is used to skip the remaining part of a loop and start with next iteration.

PART – IV
IV. Answer The Following Questions.

Question 1.
Write a detail note on for loop?
for loop:
for loop is the most comfortable loop. It is also an entry check loop. The condition is checked in the beginning and the body of the loop(statements – block 1) is executed if it is only True otherwise the loop is not executed.
Syntax:
for counter _ variable in sequence:
statements block 1
optional block
[else:
statements block 2]
The counter_variable mentioned in the syntax is similar to the control variable that we used in the for loop of C++ and the sequence refers to the initial, final and increment value.

Usually in Python, for loop uses the rangeQ function in the sequence to specify the initial, final and increment values, ranged) generates a list of values starting from start till stop – 1.
The syntax of range O is as follows:
range (start, stop, [step])
Where,
start – refers to the initial value
stop – refers to the final value
step – refers to increment value, this is optional part.
Examples for range 0
range (1, 30, 1) will start the range of values from 1 and end at 29
range (2, 30, 2) will start the range of values from 2 and end at 28
range (30, 3, -3) will start the range of values from 30 and end at 6
range (20) will consider this value 20 as the end value(or upper limit) and starts the range count from 0 to 19 (remember always range 0 will work till stop – 1 value only).




```
# program to illustrate the use of for loop – to print single digit even number
fori in range (2, 10, 2):
print (i, end = ' ')
```

Output:

2 4 6 8

Question 2.

Write a detail note on if..else..elif statement with suitable example?

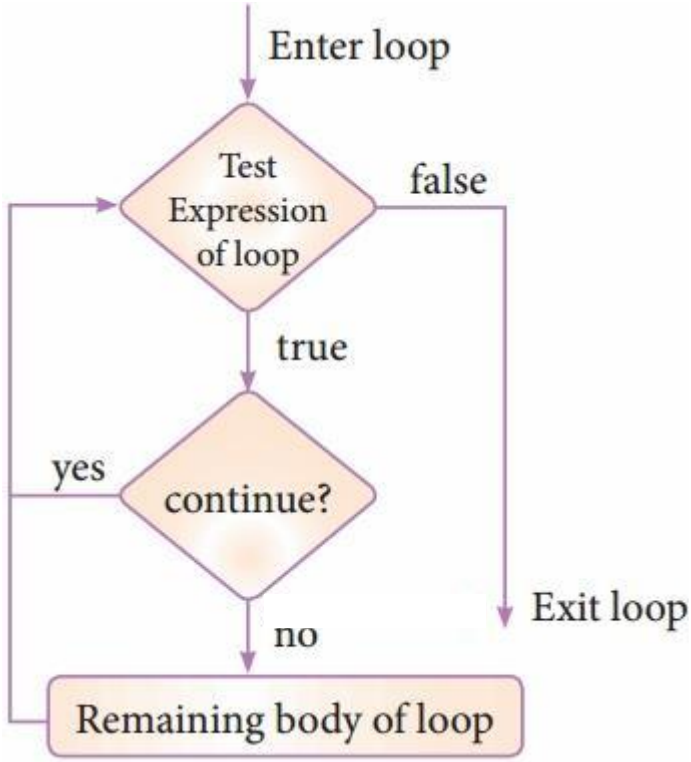
Answer:

Nested if..elif…else statement:

When we need to construct a chain of if statement(s) then 'elif' clause can be used instead of 'else'.

Syntax:

```
if:
statements – block 1
elif:
statements – block 2
else:
statements – block n
```



In the syntax of if..elif..else mentioned above, condition – 1 is tested if it is true then statements-block 1 is executed, otherwise the control checks condition – 2, if it is true statements-block2 is executed and even if it fails statements – block n mentioned in else part is executed.

'elif' clause combines if.else – if.else statements to one if.elif… else, 'elif' can be considered to be abbreviation of 'else if'. In an 'if' statement there is no limit of 'elif' clause that can be used, but an 'else 'clause if used should be placed at the end

Average	*Grade*
>=80 and above	*A*
>=70 and <80	*B*
>=60 and <70	*C*
>=50 and <60	D
Otherwise	E

m1 = int (input("Enter mark in first subject: "))
m2 = int (input("Enter mark in second subject: "))
avg = (m1 + m2)/2
if avg> = 80:
print ("Grade: A")
elif avg> = 70 and avg<80: print ("Grade: B") elif avg> = 60 and avg<70: print ("Grade:

C") elif avg> = 50 and avg<60:
print ("Grade: D")
else:
print ("Grade: E")

Output 1:
Enter mark in first subject: 34
Enter mark in second subject: 78
Grade: D

Question 3.
Write a program to display all 3 digit odd numbers?
Answer:
Odd Number (3 digits)
for a in range (100, 1000)
if a % 2 = = 1:
print b
Output:
101, 103, 105, 107, .. …… 997, 999

Question 4.
Write a program to display multiplication table for a given number?
Answer:
Multiplication table
num = int (input("Enter the number : "))
print ("multiplication Table of ", num)
for i in range(1, 11):
print (num, "x", i,"=", num*i)
Output:
Enter the number: 6
Multiplication Table of 6
$6 \times 1 = 6$
$6 \times 2 = 12$
$6 \times 3 = 18$
$6 \times 4 = 24$
$6 \times 5 = 30$
$6 \times 6 = 36$
$6 \times 7 = 42$
$6 \times 8 = 48$
$6 \times 9 = 54$
$6 \times 10 = 60$