J. BASKARAN M.Sc., B.Ed. (C.S)
jbaskaran89@gmail.com
Puducherry.

J. ILAKKIA M.Sc., M.Phil., B.Ed. (C.S)
jilakkia@gmail.com
Puducherry.

6. CONTROL STRUCTURES

Section – A

Choose the best answer **(1 Mark)**

1. How many important control structures are there in Python?

A) 3 B) 4 C) 5 D) 6

2. elif can be considered to be abbreviation of

A) nested if B) if..else **C) else if** D) if..elif

3. What plays a vital role in Python programming?

A) Statements B) Control C) Structure **D) Indentation**

4. Which statement is generally used as a placeholder?

A) continue B) break **C) pass** D) goto

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

6. Which is the most comfortable loop?

A) do..while B) while **C) for** D) if..elif

7. What is the output of the following snippet?

```
i=1
while True:
if i%3 ==0:
break
print(i,end='')
i +=1
```

A) 1 2 B) 123 C) 1234 D) 124

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

9. Which amongst this is not a jump statement ?

A) for B) goto C) continue D) break

10. Which punctuation should be used in the blank?

```
if <condition>_
statements-block 1
else:
statements-block 2
```

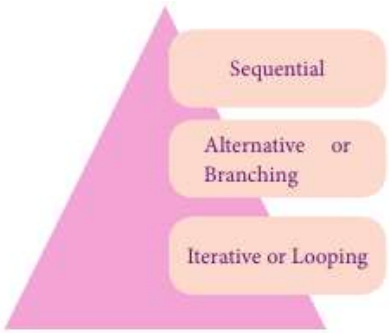
A) ; **B) :** C) :: D) !

Section-B

Answer the following questions **(2 Marks)**

1. List the control structures in Python.

- Three important control structures are,



2. Write note on break statement.

break statement :

- The **break** statement terminates the loop containing it.
- Control of the program flows to the statement immediately after the body of the loop.

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

Syntax:

```
if <condition>:
statements-block 1
else:
statements-block 2
```

4. Define control structure.

- A program statement that causes a jump of control from one part of the program to another is called control structure or control statement.

5. Write note on range () in loop

- range() generates a list of values starting from start till stop-1 in for loop.
- The syntax of range() 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.

Section-C

Answer the following questions **(3 Marks)**

1. Write a program to display

A

A B

A B C

A B C D

A B C D E

CODE:

```
a=['A','B','C','D','E']
for i in range(0,6):
    for j in range(0,i):
        print(a[j],end=" ")
    else:
        print()
```

2. Write note on if..else structure.

- The **if .. else** statement provides control to check the true block as well as the false block.
- **if..else** statement thus provides two possibilities and the condition determines which BLOCK is to be executed.

Syntax:

```
if <condition>:
    statements-block 1
else:
    statements-block 2
```

3. Using if..else..elif statement write a suitable program to display largest of 3 numbers.

CODE:

```
n1= int(input("Enter the first number:"))
n2= int(input("Enter the second number:"))
n3= int(input("Enter the third number:"))
if(n1>=n2)and(n1>=n3):
   biggest=n1;
elif(n2>=n1)and(n2>=n3):
   biggest=n2
else:
   biggest=n3
print("The biggest number between",n1,",",n2,"and",n3,"is",biggest)
```

OUTPUT

```
Enter the first number:1
Enter the second number:3
Enter the third number:5
The biggest number between 1 , 3 and 5 is 5
```

4. Write the syntax of while loop.

Syntax:

```
while <condition>:
    statements block 1
[else:
    statements block2]
```

5. List the differences between break and continue statements.

break	continue
The **break** statement terminates the loop containing it.	The **Continue** statement is used to skip the remaining part of a loop and
Control of the program flows to the statement immediately after the body of the loop.	Control of the program flows start with next iteration.
Syntax: break	**Syntax:** continue

Section - D

Answer the following questions: **(5 Marks)**

1. Write a detail note on 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
[else:      # optional block
    statements-block 2]
```

- The *counter_variable* is the control variable.
- The *sequence* refers to the initial, final and increment value.
- **for** loop uses the *range()* function in the sequence to specify the initial, final and increment values.
- **range()** generates a list of values starting from **start** till **stop-1.**

The syntax of range() 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.

Example:

```
for i in range(2,10,2):
print (i,end=' ')
else:
print ("\nEnd of the loop")
```

Output:

2 4 6 8

End of the loop

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

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'.**
- **'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.

Syntax:

```
if <condition-1>:
   statements-block 1
elif <condition-2>:
   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-block1 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.

Example:

```
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 :

```
Enter mark in first subject : 34
Enter mark in second subject : 78
Grade : D
```

3. Write a program to display all 3 digit odd numbers.

CODE:

```
lower=int(input("Enter the lower limit for the range:"))
upper=int(input("Enter the upper limit for the range:"))
for i in range(lower,upper+1):
   if(i%2!=0):
      print(i,end=" ")
```

Output:

```
Enter the lower limit for the range:100
Enter the upper limit for the range:150
101 103 105 107 109 111 113 115 117 119 121 123 125 127 129 131 133 135 137 139 141 143 145 147 149
>>>
```

4. Write a program to display multiplication table for a given number.

CODE:

```
num=int(input("Display Multiplication Table of "))
for i in range(1,11):
    print(i, 'x' ,num, '=' , num*i)
```

Output:

```
Display Multiplication Table of 2
1 x 2 = 2
2 x 2 = 4
3 x 2 = 6
4 x 2 = 8
5 x 2 = 10
6 x 2 = 12
7 x 2 = 14
8 x 2 = 16
9 x 2 = 18
10 x 2 = 20
>>>
```

PREPARED BY

J. BASKARAN M.Sc., B.Ed. (C.S)
jbaskaran89@gmail.com

J. ILAKKIA M.Sc., M.Phil., B.Ed. (C.S)
jilakkia@gmail.com