COMPUTER SCIENCE

6. CONTROL STRUCTURE

Choose the best answer :

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) 12   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) !

Part - II

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

1. **List the control structures in Python.**
   - ✓ Sequential
   - ✓ Alternative or Branching
   - ✓ Iterative or Looping

2. **Write note on 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.
   - When the **break** statement is executed, the control flow of the program comes out of the loop and starts executing the segment of code after the loop structure.

3. **Write 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**.
   range (start, stop, [step])
   - ✓ start – refers to the **initial value**
   - ✓ stop – refers to the **final value**
   - ✓ step – refers to **increment value, this is optional part.**

P_{art} - III

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
```

```
For i in range (65, 70):
For j in range (65, i + 1):
print (chr(j), end = ' ')
print (end='\n')
i+ = 1
```

2. **Write note on if..else structure.**
   ✓ When we need to construct a chain of **if** statement(s) then **'elif'** clause can be used
     instead of **'else'**.
   ✓ **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.

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

```
a = int (input ("Enter number 1")
b = int (input (" Enter number 2")
c = int (input (" Enter number 3")
if a > b and a > c:
put (" A is greatest")
elif b > a and b > c:
print ("B is greatest")
else:
print ("C is greatest")
```

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.**
   - ✓ The break statement terminates the loop containing it and control reaches after the body of the loop where as continue statement skips the remaining part of a loop and start with next iteration.

Part - IV

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-block1) 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** 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.
   - ✓ The syntax of range() is as follows:
     range (start,stop,[step])
     - start – refers to the **initial value**
     - stop – refers to the **final value**
     - step – refers to **increment value, this is optional part.**

Example :
#Program to illustrate the use of for loop - to print single digit even number
for i in range (2,10,2):
print (i, end=' ')
Output :
2 4 6 8

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

- When we need to construct a chain of if statement(s) then **'elif'** clause can be used instead of **'else'**.
- ✓ **Syntax :**
  if <condition-1>:
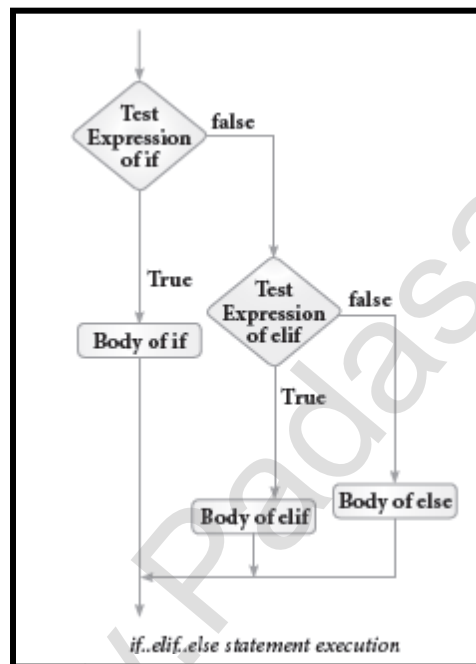 *statements-block 1*
  elif <condition-2>:
  statements-block 2
  else:
  statements-block n

- 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.

if..elif..else statement execution

- **'elif'** can be considered to be abbreviation of **'else if'**.
- **'elif'** clause combines **if..else-if..else** statements to one **if..elif…else.**

Example :
 #Program to illustrate the use of nested if statement
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
Output 2 :
   Enter mark in first subject : 67

3. Write a program to display all 3 digit odd numbers.
```
for i in range (101, 100, 2):
print (i, end = " ")
```

4. **Write a program to display multiplication table for a given number.**
```
n = int (input ("Enter the number")
for i in range (1, 13):
print (n, 'x', i, " = ", n * i)
```

***************************ALL THE BEST*************************

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7th Unit Coming Soon….