

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Programming in Python

Section Id :	640653138893
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	17
Number of Questions to be attempted :	17
Section Marks :	50
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Section Maximum Duration :	0
Section Minimum Duration :	0
Section Time In :	Minutes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653387645
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 6406532127540 Question Type : MCQ

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT " DIPLOMA LEVEL : PROGRAMMING IN PYTHON

(COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406536932451.  Yes

6406536932452.  No

Sub-Section Number :

2

Sub-Section Id :

640653387646

Question Shuffling Allowed :

Yes

Question Number : 2 Question Id : 6406532127541 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following Python functions:

```
def a(n):  
    if n < 10:  
        return n  
    return a(n // 10)  
  
def c(n):  
    if n <= 1:  
        return 1  
    return n * c(n - 1)  
  
def mystery(x):  
    # one line is missing here:  
    pass
```

Given that `mystery(8) == 4`, what should replace the missing line?

Options :

6406536932453.  `return x`

6406536932454.  `return a(c(x))`

6406536932455.  `return a(a(x))`

6406536932456. ✖ `return x // 10`

Question Number : 3 Question Id : 6406532127542 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following code:

```
items = ["pen", "pencil", "eraser", "marker"]
out = []

for i in range(len(items)):
    for j in range(i):
        if len(items[i]) != len(items[j]):
            out.append(items[i])
            break
print(out)
```

What is the output?

Options :

6406536932457. ✔ `['pencil', 'eraser', 'marker']`

6406536932458. ✖ `['eraser', 'marker']`

6406536932459. ✖ `['pencil', 'marker']`

6406536932460. ✖ `['pen', 'pencil', 'eraser', 'marker']`

Question Number : 4 Question Id : 6406532127543 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following Python function.

```
def f(s):
    D = {}
    for ch in s:
        D[ch] = D.get(ch, 0) + 1

    best = None
    count = -1
    for k in sorted(D):
        if D[k] > count:
            count = D[k]
            best = k
    return best

print(f(s))
```

Which of the following inputs **s** will produce the output 'b'?

Options :

6406536932461. ✖ **s = "abbbccaa"**

6406536932462. ✖ **s = "bbccaacc"**

6406536932463. ✖ **s = "aabbcc"**

6406536932464. ✔ **s = "bbbcaac"**

Question Number : 5 Question Id : 6406532127544 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

What does the following code compute?

```
def selector(n):
    A = []
    for x in range(1, n + 1):
        if (x - 1) % 4 == 0:
            A.append(x)
    return A

def aggregator(L):
    S = 0
    for v in L:
        if v % 2 != 0:
            S += v
    return S

def controller(n):
    X = selector(n)
    Y = aggregator(X)
    return Y

print(controller(25))
```

Options :

6406536932465. ✖ 85

6406536932466. ✖ 105

6406536932467. ✔ 91

6406536932468. ✖ 36

Question Number : 6 Question Id : 6406532127545 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the snippets:

Code-1

```
X = ([1, 2],)
X[0].append(3)
```

Code-2

```
Y = (1, 2, 3)
Y += (4,)
```

Code-3

```
Z = ([1, 2], [3, 4])
Z[1] = [5, 6]
```

Which statement is correct?

Options :

- 6406536932469. ✖ Only Code-1 throws an error
- 6406536932470. ✖ Only Code-2 throws an error
- 6406536932471. ✔ Only Code-3 throws an error
- 6406536932472. ✖ None throw an error

Question Number : 7 Question Id : 6406532127546 Question Type : MCQ

Correct Marks : 3

Question Label : Multiple Choice Question

What is the output of the following snippet of code?

```
s = 'machinelearningwithpython'
D = {}
for ch in s:
    D[ch] = D.get(ch, 0) + 1
mch = ''
mcv = -1
for k in sorted(D.keys()):
    if D[k] > mcv:
        mcv = D[k]
        mch = k
print(mch)
```

Options :

- 6406536932473. ✖ ☐ i

6406536932474. ✓

n

6406536932475. ✖

e

6406536932476. ✖

a

Sub-Section Number :

3

Sub-Section Id :

640653387647

Question Shuffling Allowed :

Yes

Question Number : 8 Question Id : 6406532127547 Question Type : MSQ

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

What is the output?

```
def f(x):  
    try:  
        print("T")  
        return 10 // x  
    except ZeroDivisionError:  
        print("E")  
        return "Z"  
    finally:  
        print("Y")  
        return "F"  
  
p = f(2)  
q = f(0)
```

Options :

6406536932477. ✖ The output contains

T E Y

6406536932478. ✓ The output contains

T Y T E Y

6406536932479. ✖ p == 5

6406536932480. ✖ q == "Z"

6406536932481. ✔ p == "F"

6406536932482. ✔ q == "F"

6406536932483. ✖ The finally block executes only when an exception occurs

Question Number : 9 Question Id : 6406532127548 Question Type : MSQ

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

`records` is a list of tuples `(name, score)`. Select **all** correct snippets that produce a list of names scoring **strictly above 80**, sorted by score descending.

Options :

6406536932484. ✔

```
[name for name, s in sorted(records, key=lambda x: x[1], reverse=True) if s > 80]
```

6406536932485. ✔

```
list(
    map(
        lambda x: x[0],
        filter(
            lambda x: x[1] > 80,
            sorted(records, key=lambda x: x[1], reverse=True)
        )
    )
)
```

6406536932486. ✖

```
sorted([x for x in records if x[1] > 80])
```

6406536932487. ✖

```
[x[0] for x in records if x[1] >= 80]
```

Question Number : 10 Question Id : 6406532127549 Question Type : MSQ

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following snippet of code:

```
filename = "test.txt"

with open(filename, "w") as f:
    f.write("\n".join((f"Line{i}" for i in range(1,11))))

with open(filename, "r") as f:
    f.readline()
    f.readline()
    print(f.read(5))
    f.readline()
    print(f.read(10))
    f.seek(0)
    print(f.read(5))
    f.readline()
    f.readline()
    print(f.read(5))
```

Select **all** that apply.

Note

- If a value is passed to `f.read`, it reads that many number of characters from the current position of the file pointer.
- The `f.seek` method moves the position of the file pointer to the given number of chars after the start of the file.

Options :

6406536932488. ✓ The first line of the output is `Line3`.

6406536932489. ✗ The second line of the output is `Line5`.

6406536932490. ✓ The second line of the output is `Line4`.

6406536932491. ✓ There are 5 lines in the output.

6406536932492. ✗ The output contains empty lines.

Sub-Section Number :

4

Sub-Section Id :

640653387648

Question Shuffling Allowed :

Yes

Question Number : 11 Question Id : 6406532127550 Question Type : SA Keyboard Layout : Inscript

Correct Marks : 3

Question Label : Short Answer Question

Consider the following Python code snippet:

```
def f_count(lst):
    if not lst:
        return 0
    result = 1 if lst[0].isupper() else 0
    if len(lst) == 1:
        return result
    return result + f_count(lst[1:-1]) + (1 if lst[-1].isupper() else 0)

result = f_count(['A', 'b', 'C', 'd', 'E', 'f', 'G'])
print(result)
```

What is the output of the program?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 12 Question Id : 6406532127551 Question Type : SA Keyboard Layout : Inscript

Correct Marks : 3

Question Label : Short Answer Question

What is printed?

```

total = 1
err = 0

for x in [5, "2", 0, "x"]:
    try:
        total *= 10 // int(x)
    except ZeroDivisionError:
        err += 3
        total += 2
    except:
        err += 1

print(total + err)

```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

16

Question Number : 13 **Question Id :** 6406532127552 **Question Type :** SA **Keyboard Layout :** Inscript

Correct Marks : 3

Question Label : Short Answer Question

Fill in the blank with the missing expression so that the following conditions hold:

$$f(2) = 1$$

$$f(3) = 1$$

$$f(4) = 2$$

```

def f(n):
    if n < 2:
        return n
    return f(n//2) + f(n//__)

```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 14 **Question Id :** 6406532127553 **Question Type :** SA **Keyboard Layout :** Inscript

Correct Marks : 3

Question Label : Short Answer Question

What is the output?

```
L = [2, 4, 6]
S = []
T = 0

for i in range(len(L)):
    S += L[:i+1]
    for x in S:
        T += x

print(T)
```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

30

Question Number : 15 **Question Id :** 6406532127554 **Question Type :** SA **Keyboard Layout :** Inscript

Correct Marks : 3

Question Label : Short Answer Question

What is the output?

Note : The function divmod(a, b) gives two values:

(quotient : $x // 10$, remainder : $x \% 10$)

for example: divmod(27, 10) gives (2, 7)

```
def g(n):
    def reduce_once(x):
        s = 0
        while x:
            x, r = divmod(x, 10)
            s += r
        return s

    return n if n < 10 else g(reduce_once(n))

print(g(999))
```

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

9

Sub-Section Number :

5

Sub-Section Id :

640653387649

Question Shuffling Allowed :

No

Question Id : 6406532127555 **Question Type :** COMPREHENSION **Sub Question Shuffling Allowed :** No **Group Comprehension Questions :** No **Question Pattern Type :** NonMatrix

Question Numbers : (16 to 17)

Question Label : Comprehension

```

moves = "UUDUDDDUU"
floor = 0
u = d = 0

for i, m in enumerate(moves):
    if m == "U":
        floor += 1
        u += 1
    else:
        floor -= 1
        d += 1
    if floor == -2:
        print(i+1)
        break

print(u, d)

```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 16 Question Id : 6406532127556 Question Type : MCQ

Correct Marks : 2

Question Label : Multiple Choice Question

What is printed by `print(i+1)` ?

Options :

6406536932498. ✖ 4

6406536932499. ✔ No output

6406536932500. ✖ 7

6406536932501. ✖ 8

Question Number : 17 Question Id : 6406532127557 Question Type : MCQ

Correct Marks : 2

Question Label : Multiple Choice Question

What is printed as the output?

Options :

6406536932502. ✖ 4 4

6406536932503. ✖ 3 3

6406536932504. ✓ 5 4

6406536932505. ✗ 4 5

Question Id : 6406532127558 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Question Numbers : (18 to 19)
Question Label : Comprehension

```
class Counter:
    count = 0
    def __init__(self, x):
        self.x = x
        Counter.count += 1
    def inc(self):
        self.x += 1
        return self.x

a = Counter(3)
b = Counter(5)
c = a.inc()
d = b.inc()
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 18 Question Id : 6406532127559 Question Type : MCQ

Correct Marks : 2

Question Label : Multiple Choice Question

What is the value of `Counter.count` ?

Options :

6406536932506. ✗ 1

6406536932507. ✓ 2

6406536932508. ✗ 3

6406536932509. ✗ 8

Question Number : 19 Question Id : 6406532127560 Question Type : MCQ

Correct Marks : 2

Question Label : Multiple Choice Question

What is the value of $c + d$?

Options :

6406536932510. ✖ 8

6406536932511. ✔ 10

6406536932512. ✖ 11

6406536932513. ✖ 12