

MSc AIML Sem.-1 Examination

Problem Solving with Python

January-2025

Time : 3-00 Hours]

[Max. Marks : 100

Instructions:

- Write both the Sections in the separate answer book.
- Both Sections having equal weightage.
- Draw Diagrams wherever necessary.
- Make Assumptions wherever necessary.

SECTION – I

Q.1 Explain the following terms with example.

[16]

- Recursion
- Anonymous Function
- Decorator
- Generator

Q.2 Attempt the following (Any FOUR)

[16]

- What is function? How do we define a function in python and call that function and return value from the function.
- What is loop? Write syntax of different types of loops in python along with an example.
- Explain the concept of slicing and indexing on string values with an example.
- Explain the difference between 'break', 'continue' and 'pass' with example.
- What are the different operators that can be used for string datatype?

Q.3 Write the output for the following code (Any TWO)

[18]

- ```
s="a,b,c,d".split(',')
n="11,50,12,50".split(',')
c=[]
t=""
for i in range(len(n)):
 for j in range(len(n)):
 if(int(n[i])==int(n[j])):
 if(s[i]<s[j]):
 t=s[i]+''+s[j]
 c.append(t)
```

```
print(c)
(b) k = [4,1,7,9,3,6,3,2,6,9]
 j = 0
 while j < len(k):
 if k[j] == 7:
 pass
 if k[j] == 2:
 print(j)
 break
 elif k[j]%3==1:
 j=j+2
 continue
 print(j)
 j+=1
(c) l1=[1,2,3]
 l2=list(l1)
 l3=l1[:]
 l4=l1.copy()
 l5=l1
 l2[0]=100
 l3[1]=200
 l4[0]=3
 print(l2)
 print(l1 is l2)
 print(l3)
 print(l1 is l3)
 print(l4)
 print(l1 is l4)
 print(l1 is l5)
```

## SECTION – II

Q.4 **Answer the following question**

[16]

- (a) Explain Abstract Class in detail.
- (b) What is Inheritance. Explain with an example.
- (c) Explain following Datatypes in Python:
  - i. List
  - ii. Tuple
  - iii. Set
  - iv. Dictionary
- (d) Explain different types of method that can be defined within Class along with example.

- Q.5 **Explain the following functions with example (Any NINE)** [18]
- |            |              |               |             |
|------------|--------------|---------------|-------------|
| (a) tell() | (b) range()  | (c) filter()  | (d) abs()   |
| (e) seek() | (f) map()    | (g) isalpha() | (h) input() |
| (i) id()   | (j) reduce() | (k) type()    |             |

- Q.6 What is file handling? What are the different types of files and also explain different modes to open these files. Explain the syntax to open and close a file. Explain various read and write function available in python for files in details. [16]

**OR**

- Q.6 What is exception handling? Explain various errors occur in Python. Explain user define Exception in detail with proper example. [16]
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