



MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : MCAN-101 Programming Concept with Python
UPID : 001607

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (i) Define package in Python.
- (ii) Which keyword is used to raise an error in Python?
- (iii) Give one example of the use of `__init__()` function.
- (iv) Explain IEEE-754 floating point representation for 32 bit numbers.
- (v) Draw the input and output symbol for a flowchart.
- (vi) How to create a string variable in python?
- (vii) Write the types of control statements in Python.
- (viii) How to get a random number between 0 and 1.
- (ix) How to set a default value in a function?
- (x) What happens when a function doesn't have a return statement? Is this valid?
- (xi) Differentiate error and exception.
- (xii) Write the output

```
import re
re.findall('aa[cde]?', 'aacde aa aadcde')
```

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

2. Write a program to count the number of unique capital letters in a file?
3. What is Index Out Of Range Error?
4. How to remove values from a Python array? Explain with example
5. Explain the computer memory hierarchy.
6. Explain different types of loops in python with examples.

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Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. (a) Write a Python function to check whether a number falls in a given range.
- (b) Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.
- (c) Write a Python program to print the even numbers from a given list.
8. (a) Write a program to count the words "to" and "the" present in a text file "python.txt".
- (b) Write a program to display all the lines in a file "python.txt" along with line/record number.
- (c) Write a short note on `flush()` function.
9. (a) Explain the basic computer architecture with a diagram.
- (b) Write differences between 1's and 2's complements in the binary number system.
- (c) What do you mean by Packed and unpacked BCD system? Explain with examples.
10. (a) What are standard input, output and error streams?
- (b) Differentiate between Absolute Pathnames and Relative Pathnames.
- (c) Differentiate `write()` and `writelines()`.
11. (a) Draw a flowchart and write an algorithm for merge sort.
- (b) Write the pseudocode for binary search.

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