



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 x 10 = 10]

1. Answer any ten of the following :

- (i) Differentiate structured and unstructured programming.
- (ii) Write the output

```
>>> minutes = 645
>>> hours = minutes // 60
>>> hours
```

10
- (iii) Differentiate while and for loop.
- (iv) How do we convert the string to lowercase?
- (v) How does a function return values?
- (vi) How to delete a file?
- (vii) How to express switch-case statements using flowchart?
- (viii) What will happen if we write

```
>>> 17 = n
>>> print(n)
```
- (ix) Define iterator.
- (x) Explain the statement f.seek(-3, 2)
- (xi) What is the value of M and N respectively? If M39048458N is divisible by 8 & 11; where M & N are single digit integers?
- (xii) How to express subroutine calls using flowchart?

Group-B (Short Answer Type Question)

Answer any three of the following

[5 x 3 = 15]

- 2. Write a program to get the eigenvalues of a matrix. [5]
- 3. What is the difference between list and tuple in Python? Explain with example. [5]
- 4. Draw a flowchart to calculate the factorial of a number given by the user. [5]
- 5. Explain the use of modulus operator in python. [5]
- 6. Explain the use of BCD and Gray code with examples. [5]

Group-C (Long Answer Type Question)

Answer any three of the following

[15 x 3 = 45]

- 7. (a) Find the most frequent value in a NumPy array. [5]
- (b) Compute the covariance matrix of two given NumPy arrays. [5]
- (c) Write a program to replace NaN values with the average of columns. [5]
- 8. (a) Does multiple inheritance is supported in Python? Explain with example. [5]
- (b) How can we create a constructor in Python programming? [5]
- (c) How do you copy an object in Python? Give example. [5]
- 9. (a) Draw a flowchart and write an algorithm for binary search. [10]
- (b) Write the pseudocode for linear search. [5]
- 10. (a) Explain the difference between left hand side and right hand side of assignment with an example. [5]
- (b) How are implicit and explicit type conversions done in python? [5]
- (c) Explain the case sensitivity of python. How to take console input. [5]

- ✓ (a) Discuss about type conversion functions. What type of error will you receive for the statement `int("23 bottles")`? [5]
- (b) Mention the points which should be followed while choosing mnemonic variable names. [5]
- (c) How to print different types of variables? [5]

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