

**University of Kerala**  
Third Semester M.Sc. Degree Examination  
MM 233: Numerical Analysis with Python

Time:120 Minutes

Max Marks:25

**Part A**

*Answer **Any Two** Questions.*

1. Write a python program to print all the primes less than 1000.
2. Write a python program to find all factors of a given number.
3. Write a python program to find the multiples in Bezout's identity.
4. Write a python program to print first 100 Febonacci numbers.

$2 \times 5 = 10$  Marks.

**Part B**

*Answer **Any One** Question.*

5. Draw the bar chart for the following data

Year	2015	2016	2017	2018	2019	2020	2021
Rain fall(cm)	510	595	553	570	592	625	598

6. Show that the ratio of the consecutive terms of Fibonacci series converges, by plotting the values.

$1 \times 5 = 5$  Marks.

**Part C**

*Answer **Any One** Question.*

7. Write a python program to print the first 10 terms of the following series.

$$\log(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \dots$$

8. Using python find the maxima and minima of  $x^5 - 30x^3 + 50x$   
 $1 \times 5 = 5$  Marks.

### **Part D**

*Answer **Any One** Question.*

5. By a Python program find a solution for  $x^3 - 7x^2 + 14x - 6 = 0$  accurate to within  $10^{-2}$  in  $[0, 1]$  using Bisection method.
6. By a Python program approximate the integral  $\int_0^{0.5} \frac{2}{x-4} dx$  using the Simpson's Rule

$1 \times 5 = 5$  Marks.