No. of Printed Pages : 2 **MMT–001(P)(Set-I)**

# M. SC. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE) [M. SC. (MACS)]

## Term-End Practical Examination

## June, 2025

### MMT–001(P)(Set-I) : PROGRAMMING AND DATA STRUCTURES

*Time : 2 Hours* *Maximum Marks : 50*

***Note** : (i) There are **two** questions in this paper, totaling 40 marks.*

*(ii) Answer both of them.*

*(iii) The remaining 10 marks are for viva-voce.*

1. Write a function that evaluates a polynomial by Horner's method. It should prompt for the coefficients of the polynomial, store the values in an array, prompt the value for

which the polynomial is to be evaluated, and print the value. Your program should be able to evaluate any polynomial of degree upto 20. 20

2. Write a function that computes the value of $\tan^{-1} x$ using the power series expansion :

$$x - \frac{x^3}{3} + \frac{x^5}{5} - \cdots$$

Use your function to compute the value of $\pi$ using the formula : 20

$$\pi = 16 \tan^{-1}\left(\frac{1}{5}\right) - 4 \tan^{-1}\left(\frac{1}{239}\right).$$

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