MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM – 686 666.
(GOVERNMENT AIDED AUTONOMOUS ENGINEERING COLLEGE)

DEPARTMENT OF MECHANICAL ENGINEERING

SECOND SESSIONAL EXAMINATION, NOVEMBER 2025
S1 MECHANICAL A & B BATCH

B24ES1T01B: PROBLEM SOLVING AND PROGRAMMING TECHNIQUES (B)

Time –1.5 Hours **Max: 40 Marks**

PART-A

Answer All Questions.

1	How to define a function in python? Discuss any two python built-in functions.	**CO3**	**3 Marks**
2	What are modules in python? Discuss the use of math module with an example usage.	**CO3**	**3 Marks**
3	Explain the application of following in python a. os.chdir() b. os.mkdir() c. os.makedirs() d. os.remove() e. os.path.isfile() f. shutil.rmtree()	**CO4**	**3 Marks**
4	Discuss try – except – else – finally with syntax.	**CO4**	**3 Marks**

PART - B

Answer All Questions.

5	a. What is function recursion? Write a program to find the factorial of a number using function recursion. (7 marks) b. Discuss with examples, the method of creating user defined modules in python. What is the application of *'os module'* in python? (7 marks)	**CO3**	**14 Marks**
6	a. Discuss with examples the two different methods of opening a file in python. Explain the different access modes of opening a file. In which all modes the data in an existing file will be deleted? (7 marks) b. Write a program to open the file *'data.txt'* in the current working directory, read and display the content. If the file does not exist, create one file of the same name. Use try-except for error handling. (7 marks)	**CO4**	**14 Marks**

Vision

Mentoring to ensure Excellence

Mission

To facilitate comprehensive and integrated development of students by providing quality education that encourages sustainable practices

To mould disciplined and socially committed engineers capable of assuming professional leadership upholding national integrity