

U.S.N.

**B.M.S. College of Engineering, Bengaluru-560019**

Autonomous Institute Affiliated to VTU

**June 2025 Semester End Main Examinations****Programme: B.E.****Semester: IV****Branch: Industrial Engineering and Management****Duration: 3 hrs.****Course Code: 23IM4PCFPT****Max Marks: 100****Course: Fundamentals of Programming Tools**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			<b>UNIT - I</b>	<b>CO</b>	<b>PO</b>	<b>Marks</b>
	1	a)	Illustrate the key tasks that an Industrial Engineer performs in a manufacturing company on a typical day?	CO1	PO1	10
		b)	Illustrate the applications of Noncontact sensors and an electrical sensor in the field of Industrial Engineering.	CO1	PO1	10
			<b>OR</b>			
	2	a)	List and explain the key points to engineer a solution as specified by Fred Nickols	CO1	PO1	10
		b)	In the domain of Enterprise engineering, do solutions matter? How does an Industrial Engineer demonstrate improvement?	CO1	PO1	10
			<b>UNIT - II</b>			
	3	a)	Demonstrate how to fade an LED bulb using the appropriate feature on an Arduino board.	CO2	PO1	10
		b)	Discuss the various Industrial applications of the Arduino board. Explain any two in detail.	CO2	PO1	10
			<b>OR</b>			
	4	a)	List and explain the features of a typical ArduBlock. Explain the steps of installation.	CO2	PO1	10
		b)	List and explain the features of a typical Minibloq.	CO2	PO1	10
			<b>UNIT - III</b>			
	5	a)	Illustrate the features of a typical Basic Structure of a Credit card PC	CO3	PO1	10

	b)	Explain the specifications of a memory and a CPU of a Raspberry Pi	CO3	PO1	10
		<b>OR</b>			
6	a)	List and explain the typical features of Raspberry PI Model A	CO3	PO1	10
	b)	Explain the technical features of Diet Pi OS which are used in Raspberry pi?	CO3	PO1	10
		<b>UNIT - IV</b>			
7	a)	Discuss are the advantages of the Python programming language?	CO3	PO3	10
	b)	Write a Python Code to find a given string is palindrome	CO3	PO3	10
		<b>OR</b>			
8	a)	Three divisions are showing signs of rejection at their customers' end. Write a flowchart for finding out which division has the largest rejection.	CO4	PO5	10
	b)	Demonstrate the utility of Arithmetic Operators and strings with a code snippet in Python. Illustrate the different types of variables used in Python	CO4	PO5	10
		<b>UNIT - V</b>			
9	a)	Derive the approximate roots of the function $f(x) = x^3 - 12x - 10$ using the graphical method. Comment on the behavior of the equation, what can be the minimum positive root.	CO4	PO5	10
	b)	Solve $f(x) = x^2 - 36$ with guess 5 and 10 to an accuracy of .001 using the bisection method, showing all iterations. Show the convergence of F0 or F2	CO4	PO5	10
		<b>OR</b>			
10	a)	A function is defined as $f(x) = x^3 - 4x - 1$ . Find the positive minimum root of the function by the False Position Method to reach an accuracy of 0.0001.	CO4	PO5	10
	b)	Write a flowchart and algorithm for the False Position Method	CO4	PO5	10

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