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

Autonomous Institute Affiliated to VTU

## September / October 2023 Semester End Main Examinations

**Programme: B.E.**

**Branch: Industrial Engineering and Management**

**Course Code: 22IM4PCFPT**

**Course: Fundamentals of Programming Tools**

**Semester: IV**

**Duration: 3 hrs.**

**Max Marks: 100**

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

			<b>UNIT - I</b>		<b>CO</b>	<b>PO</b>	<b>Marks</b>
<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.	1	a)	What are the essential prerequisites of a Programming language?		CO1 CO2	PO1	<b>10</b>
		b)	Can you explain the concept of "Solutions Architecture" and highlight the differences between Solutions Architecture and Solutions Engineering?		CO1 CO2	PO1	<b>10</b>
			<b>OR</b>				
	2	a)	From an Industrial Engineering perspective, what are some important sensors, and could you elaborate on three of them?		CO1 CO2	PO1	<b>10</b>
		b)	Enumerate the key attributes of a Standard Programming Tool.		CO1 CO2	PO1	<b>10</b>
			<b>UNIT - II</b>				
	3	a)	Elaborate on the operation of the Arduino board, supported by a well-structured diagram, and outline the applications of the Arduino board.		CO2	PO2	<b>12</b>
		b)	How is Pulse Width Modulation (PWM) utilized in Arduino boards, and could you illustrate this with a relevant graph?		CO2 CO3	PO2	<b>08</b>
			<b>UNIT - III</b>				
	4	a)	Name and illustrate the essential components of the Raspberry Pi board with the help of a circuit diagram.		CO1 CO2	PO1	<b>10</b>

	b)	Can you identify the categories of operating systems utilized with Raspberry Pi?	CO1 CO2	PO1	<b>10</b>
		<b>UNIT - IV</b>			
5	a)	Create an algorithm and flowchart for the Bisection Method used in solving equations.	CO3 CO4	PO3	<b>12</b>
	b)	Elucidate the characteristics of Tuples and Lists within the context of Python.	CO	PO	<b>08</b>
		<b>UNIT - V</b>			
6	a)	Obtain the solution for the equation $f(x) = x^2 - 64 = 0$ with an accuracy of three decimal places using the False position method, incorporating manual calculations and Python code.	CO4	PO3	<b>12</b>
	b)	Write a Python code and draw the flowchart to determine the "largest of 3 numbers."	CO4	PO3	<b>08</b>
		<b>OR</b>			
7	a)	List and explain the advantages and disadvantages of the Python programming language.	CO4	PO3	<b>10</b>
	b)	Why is there no compiler available for the Python language, and can you justify this absence?	CO4	PO3	<b>10</b>

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