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

Autonomous Institute Affiliated to VTU

## October 2024 Supplementary Examinations

**Programme: B.E.**

**Semester: VI**

**Branch: Industrial Engineering & Management**

**Duration: 3 hrs.**

**Course Code: 22IM6PCIBA**

**Max Marks: 100**

**Course: Industry 5.0**

**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)	Identify the critical areas of manufacturing that have been impacted by Digital transformation in manufacturing and explain them with any two examples of Manufacturing Digitization.		CO1	PO1	<b>10</b>
		b)	What is Business Transformation? Explain the key elements and types of Business Transformation.		CO1	PO1	<b>10</b>
<b>OR</b>							
	2	a)	What is Engineering Process Automation? How do you implement it in an Automotive Industry? Explain.		CO1, CO2	PO1, PO2	<b>08</b>
		b)	Can RPA bring about fundamental transformation in Manufacturing? Using a flowchart explain its application to a electronic devices' manufacturing industry.		CO1, CO2	PO1, PO2	<b>06</b>
		c)	List and explain any three Value Drivers of Process Transformation?		CO1	PO1	<b>06</b>
			<b>UNIT - II</b>				
	3	a)	Explain the key developments and consequent results of the four Industrial Revolutions.		CO1	PO1	<b>08</b>
		b)	How do you differentiate PLC and SCADA in their design and use? Explain.		CO3	PO4	<b>06</b>
		c)	What are the basic components of IIOT? Explain the key difference between IOT and IIOT.		CO1, CO3	PO1, PO4	<b>06</b>
			<b>UNIT - III</b>				
	4	a)	Enumerate the Process Automation Potentials of making of uPVC profile extrusion process.		CO1	PO1	<b>10</b>

	b)	Elaborate on Scope of Augmented Reality and development in Additive Manufacturing as applied to Plastic Industry.	CO1, CO2	PO1, PO2	<b>10</b>
		<b>OR</b>			
5	a)	How does the Process Transformation affect the working of Ground Support Equipment in Aviation Industry under Industry 5.0?	CO1, CO2	PO1, PO2	<b>10</b>
	b)	Explain the role of AR/VR in improving safety through Maintenance, Repair and Overhaul.	CO1, CO2	PO1, PO2	<b>10</b>
		<b>UNIT - IV</b>			
6	a)	Explain the distinctive features of ideology of World Class Manufacturing Technology in today's world.	CO1, CO2	PO1, PO2	<b>10</b>
	b)	What are the challenges faced in implementing PLM and PCS(Process Control System) for SMEs? Explain.	CO1, CO2	PO1, PO2	<b>10</b>
		<b>UNIT - V</b>			
7	a)	List and explain the reasons for upgradation of Industry 4.0 to Industry 5.0.	CO1, CO2	PO1, PO2	<b>10</b>
	b)	Identify the factors that highlight the Transformation journey from Industry 3.0 to Industry 5.0 passing through Industry 4.0.	CO1, CO2	PO1, PO2	<b>10</b>

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