

<b>Trimester Sep-Dec 24</b>		
<b>Max Marks: 25 marks Examination: ESE Examination Date: 17-01-25 Duration: 1.5 Hrs.</b>		
<b>Programme code: 01</b> <b>Programme: MBA Operations Minor</b>	<b>Class: SY</b>	<b>Semester : V</b>
<b>College: K. J. Somaiya Institute of Management</b>	<b>Name of the department/Section/Center:</b> Operations	
<b>Course Code: 217P01M546</b>	<b>Name of the Course: Industry 4.0</b>	
<b>Instructions:</b> <ol style="list-style-type: none"> <li><b>1.</b> Question 1 is compulsory.</li> <li><b>2.</b> Answer any 2 questions each in Q2 and four in Q3</li> <li><b>3.</b> Make suitable assumptions wherever required.</li> </ol>		

QuestionNo.		Max. Marks
Q1.	<p>The Struggling Assembly Line</p> <p><b>Scenario:</b> "AccuFab," a leading manufacturer of precision instruments, is facing a decline in productivity at its main assembly line. Despite a skilled workforce and modern equipment, output has been steadily decreasing, leading to missed deadlines, increased costs, and declining customer satisfaction.</p> <p>Symptoms:</p> <ul style="list-style-type: none"> <li>Increased production time: Units are taking significantly longer to assemble than projected.</li> <li>High defect rates: A growing number of units require rework or are rejected due to quality issues.</li> <li>Rising costs: Increased production time and rework translate to higher labor and material costs.</li> </ul> <p>Possible Root Causes:</p> <ul style="list-style-type: none"> <li>Inefficient workflow: The assembly line may have bottlenecks, unnecessary steps, or poorly defined processes.</li> <li>Equipment malfunctions: Faulty or outdated equipment can lead to frequent breakdowns and slowdowns.</li> <li>Poor communication: Miscommunication between departments (e.g., engineering, procurement, production) can lead to delays and errors.</li> </ul> <p>Questions for Discussion:</p> <ol style="list-style-type: none"> <li>What data would you need to gather to further investigate the root causes of the problem?</li> <li>Propose a few potential solutions to address the productivity issues.</li> </ol>	5
Q2.	<p>Answer (any two – 5 marks each)</p> <p>A. Explain the concept of Theory of Constraints.</p> <p>B. Explain the steps taken in time study to arrive at the standard time of operation. Also list the various allowances that are generally considered. (5 marks)</p> <p>C. Explain the significance of Six Sigma and its implication for Industry. Also list the various costs of Quality.</p>	10
Q3.	Write Short notes on (any four – 2.5 marks each )	10

	Use of	
	A. Blockchain in Supply Chain	
	B. IOT in industry	
	C .Value analysis	
	D .Sumanths Model	
	E. Benchmarking	
	F. Business process Reengineering	