

<b>Name:</b>	
<b>Enrolment No:</b>	

**UPES**

**End Semester Examination, May 2025**

**Course: Operations Management**

**Program: MBA ALL**

**Course Code: LSCM 7001**

**Semester : Second**

**Time : 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A**  
**10Qx2M=20Marks**

S. No.	All questions are mandatory to attempt	Marks	CO
Q 1	What is a probabilistic demand pattern?	2	<b>CO3</b>
Q 2	Which is the best company in the industry which has successfully implemented operations strategy? And what was the strategy all about?	2	<b>CO3</b>
Q 3	What is the third era of operations management all about?	2	<b>CO3</b>
Q 4	What is the contribution of the third industrial revolution?	2	<b>CO3</b>
Q 5	Even factories without layouts succeed. Choose Yes or No with justification.	2	<b>CO3</b>
Q 6	What do you understand by sequencing in operations management?	2	<b>CO3</b>
Q 7	What does ASEAN stand for?	2	<b>CO3</b>
Q 8	What does TPS stand for in lean manufacturing strategy?	2	<b>CO3</b>
Q 9	What are green operations in factories?	2	<b>CO3</b>
Q 10	What is the strategic role of assembly line in manufacturing plants?	2	<b>CO3</b>

**SECTION B**  
**4Qx5M= 20 Marks**

Q 1	The demand for a newly commissioned organic tea company is sluggish for the first seven years. The annual demand for the first seven years of inception of the company is 70, 95, 130, 170, 190, 210, 270 units, respectively. Forecast the demand for the eighth year using an exponential smoothing method.	5	<b>CO4</b>
Q 2	What do you understand by KANBAN system? Explain with examples.	5	<b>CO4</b>
Q 3	Consider a case of facility location selection in a city where you are asked to choose between two locations for setting up a warehouse. Take 12 relevant factors and use a factor rating method to solve this problem and find the best location.	5	<b>CO4</b>
Q 4	What were the main reasons for operations strategies failing during COVID pandemic?	5	<b>CO4</b>

**SECTION-C**  
**3Qx10M=30 Marks**

Q 1	<p>An assembly line consists of the following elements as given in the table below.</p> <table><tr><th>Task</th><th>Predecessor</th><th>Task time (In minutes)</th></tr><tr><td>A</td><td>NIL</td><td>5</td></tr><tr><td>B</td><td>A</td><td>3</td></tr><tr><td>C</td><td>B</td><td>2</td></tr><tr><td>D</td><td>B</td><td>2</td></tr><tr><td>E</td><td>B</td><td>1</td></tr><tr><td>F</td><td>B</td><td>6</td></tr><tr><td>G</td><td>C,D</td><td>6</td></tr><tr><td>H</td><td>G</td><td>4</td></tr><tr><td>I</td><td>E</td><td>2</td></tr><tr><td>J</td><td>I,F</td><td>2</td></tr><tr><td>K</td><td>H,J</td><td>3</td></tr><tr><td>L</td><td>K</td><td>6</td></tr></table> <p>1) Draw the precedence diagram 2) Calculate the takt time. 3) Calculate the theoretical number of workstations 4) Assign tasks to workstation using the longest task time rule. 5) Calculate the efficiency of the balanced line.</p>	Task	Predecessor	Task time (In minutes)	A	NIL	5	B	A	3	C	B	2	D	B	2	E	B	1	F	B	6	G	C,D	6	H	G	4	I	E	2	J	I,F	2	K	H,J	3	L	K	6	10	CO5
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A	NIL	5																																								
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C	B	2																																								
D	B	2																																								
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F	B	6																																								
G	C,D	6																																								
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J	I,F	2																																								
K	H,J	3																																								
L	K	6																																								
Q 2	What were the implications of semiconductor shortages in India during COVID pandemic? Discuss in detail with examples.	10	CO5																																							
Q 3	<p>The geographical locations of the four stores in a city are given in the table below. Calculate the X and Y coordinates of the fifth store and mark them in the graph. (<b>Note:</b> draw a proper graph in your answer sheet, graph paper is not required)</p> <table><tr><th>Store Location</th><th>X Coordinate</th><th>Y Coordinate</th><th>Demand</th></tr><tr><td>A</td><td>400</td><td>100</td><td>3,500</td></tr><tr><td>B</td><td>500</td><td>200</td><td>2,300</td></tr><tr><td>C</td><td>100</td><td>200</td><td>4,500</td></tr><tr><td>D</td><td>300</td><td>150</td><td>2,800</td></tr></table>	Store Location	X Coordinate	Y Coordinate	Demand	A	400	100	3,500	B	500	200	2,300	C	100	200	4,500	D	300	150	2,800	10	CO5																			
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SECTION-D 2Qx15M= 30 Marks																																										
Q 1	<p>Apply all three Transportation problem methods to the problem below and find the best feasible solution (BFS).</p> <table><tr><th rowspan="2">From</th><th colspan="4">To</th><th rowspan="2">Supply</th></tr><tr><th>City 1</th><th>City 2</th><th>City 3</th><th>City 4</th></tr><tr><td>Plant 1</td><td>8</td><td>6</td><td>10</td><td>9</td><td>25</td></tr></table>	From	To				Supply	City 1	City 2	City 3	City 4	Plant 1	8	6	10	9	25	15	CO5																							
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	<table><tr><td>Plant 2</td><td>9</td><td>12</td><td>13</td><td>7</td><td>50</td></tr><tr><td>Plant 3</td><td>14</td><td>9</td><td>16</td><td>5</td><td>35</td></tr><tr><td>Demand</td><td>35</td><td>20</td><td>30</td><td>25</td><td></td></tr></table>	Plant 2	9	12	13	7	50	Plant 3	14	9	16	5	35	Demand	35	20	30	25			
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Q 2	<p>At River City Cement Co., lime is a key ingredient in their production process. They go through about 200,000 pounds of it each year, with operations running 50 weeks a year. The lime comes from a local supplier and costs just \$0.10 per pound. But the company also has to think about other costs - like the \$12 it takes to place each order, and the expense of storing the lime, which adds up to about 30% of its average value each year.</p> <p>1. Right now, River City has a habit of ordering 10,000 pounds of lime each time they restock. With that approach, what are they spending over the course of a year just to keep their lime inventory going - including storage and ordering costs?</p> <p>2. If the company wanted to be more cost-efficient, what would be the ideal amount of lime to order each time - the sweet spot that keeps both storage and ordering costs in check?</p> <p>3. Now, imagine their team expected to use 220,000 pounds of lime for the year - about 10% more than what they actually needed - and started ordering based on that estimate. How much extra would they end up paying just because of that inaccurate forecast?</p>	15	CO5																		