



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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Mid - Term Examinations – December 2025

Date: 09 / 12/ 2025

Time: 02:00pm – 03:30pm

School: SOM-PG	Program: MBA	
Course Code: OPS4111	Course Name: Production Operations and Logistics Management	
Semester: I	Max Marks:50	Weightage:25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	31	19			

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part- A

Answer ALL the Questions. Each question carries 3marks.

5Q x 3M=15 Marks

1	Discuss automation, robotics, and artificial intelligence (AI) in the context of modern production systems.	3 Marks	L1	CO2
2	List and briefly explain the four main types of production systems.	3 Marks	L1	CO2
3	Summarize any three factors that can influence productivity and efficiency in an organization.	3 Marks	L1	CO1
4	<p>A garment production line at MINWEAR company has a design capacity of 500 shirts per day. However, due to equipment maintenance, worker breaks, and quality inspections, the effective capacity is only 85% of the design capacity.</p> <p>1. Estimate the effective capacity.</p> <p>2. If the actual output is 400 shirts per day, estimate the capacity utilization based on effective capacity.</p>	3 Marks	L2	CO1
5	Calculate the productivity growth if the Past productivity is 85% & Current productivity is 95%.	3 Marks	L2	CO2

Part- B

Answer the Questions

2Qx10M = 20 Marks

6.	<p>The monthly sales figures of E scooters for the previous year are given below.</p> <table><tr><td>Month</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>No. sold (in '00)</td><td>8</td><td>5</td><td>9</td><td>11</td><td>13</td><td>13</td><td>10</td><td>11</td><td>14</td><td>15</td><td>16</td><td>18</td></tr></table> <p>1. Get a 3-month moving average for the various months of the year.</p> <p>2. Get a 3-month weighted moving average with weights of – current month: 0.5, previous month 0.3 and before previous month 0.2</p> <p>3. Use MAD calculation and comment which method seems give a better fit.</p>	Month	1	2	3	4	5	6	7	8	9	10	11	12	No. sold (in '00)	8	5	9	11	13	13	10	11	14	15	16	18	10 Marks	L2	CO1
Month	1	2	3	4	5	6	7	8	9	10	11	12																		
No. sold (in '00)	8	5	9	11	13	13	10	11	14	15	16	18																		
OR																														
7.	<p>1. John makes cardboard boxes. John and his three employees invest 40 hours per day making the 120 boxes.</p> <p>(a) What is their productivity?</p> <p>(b) John and his employees have discussed redesigning the process to improve efficiency and increased the output to 125 per day, what would be their new productivity?</p> <p>(c) What would be their increase in productivity?</p>	10 Marks	L2	CO1																										
8.	<p>A manufacturing company, TechnoFab Ltd., produces electrical components. Recently, they have faced increasing labor costs and inconsistent product quality. The management is considering adopting automation, robotics, and artificial intelligence (AI) to enhance efficiency and align operations with their goal of cost leadership and quality improvement. As the Operations Manager, explain how automation, robotics, and AI can be integrated into TechnoFab’s production system. Discuss their impact on productivity, quality, and operational strategy.</p>	10 Marks	L2	CO2																										
OR																														
9.	<p>Kashmir Lumber Co (KLC) produces apple crates, which it sells to growers. With the current equipment, KLC produces 240 crates per 100 logs. It currently purchases 100 logs per day, and each log requires three labour hours to process. KLC is considering the hire of a professional buyer who can buy better quality logs at the same cost. If this is the case, KLC can increase production to 260 crates per 100 logs, and the labour hours required will increase by eight hours per day (for the buyer).</p> <p>1. Compute the labour productivity for the current method (i.e. no buyer).</p> <p>2. What will the labour productivity be if KLC hires the professional buyer?</p> <p>3. What will the labour productivity be if KLC hires the professional buyer?</p>	10 Marks	L2	CO2																										

Part- C

Answer the following questions

1Qx15M=15Marks

10.	<p>Trend Wear Ltd. is a medium-sized apparel manufacturing company known for producing casual clothing for both domestic and international markets. The company has established a solid reputation for quality and reliable supply. However, in recent years, TrendWear has faced growing challenges in meeting delivery deadlines, maintaining consistent product quality, and controlling rising production costs.</p> <p>The company's production process combines different manufacturing methods to handle varying product categories. For small designer orders, it uses highly flexible systems, while seasonal collections are produced in controlled batches. Large-volume items such as jeans, t-shirts, and uniforms follow standardized production lines designed for efficiency. Management is now exploring whether introducing a continuous production system for high-volume fabrics could improve productivity and reduce waste.</p> <p>Market competition has intensified as global apparel firms adopt automation, robotics, and AI-driven technologies. Competitors have begun using robotic sewing, automated fabric cutting, and AI-based quality inspection systems to achieve faster turnaround times and consistent quality. In comparison, TrendWear's operations still depend heavily on manual labor for stitching, inspection, and scheduling, leading to delays and variability in output.</p> <p>The company's leadership is now evaluating how modern technologies could help enhance its operational performance. Management believes that automation and AI integration might improve precision, efficiency, and real-time monitoring of production activities. However, the transition will require significant investment, workforce training, and process redesign. There is also concern about possible resistance from employees, many of whom have long experience in traditional garment-making methods.</p> <p>TrendWear's strategic goal is to align its operations with broader business objectives such as higher productivity, improved quality, and global competitiveness. The company wants to establish systems for measuring and improving performance, identify areas for technological intervention, and create a production environment capable of meeting both custom and mass-market demands efficiently.</p> <p>To move forward, the management team must decide the extent and pace of technology adoption, evaluate its impact on different production systems, and determine how best to balance automation with human expertise. Their choices will define whether TrendWear evolves into a smart, technology-enabled manufacturer or continues to face the limitations of its current traditional methods.</p> <p>As the Production Supervisor, answer the following:(3 Marks each)</p> <p>(a) Explain the role of automation, robotics, and AI in modern production.</p>	15 Marks	L2	CO1
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<p>(b) Identify the types of production systems used by TrendWear Ltd. and briefly explain each.</p> <p>(c) Describe how operations strategy can align production processes with business goals.</p> <p>(d)Suggest techniques to measure and improve productivity and efficiency.</p> <p>(e) Give examples of technology applications that can enhance operations at Trend Wear Ltd.</p>			
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