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**CHUKA**



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**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATIONS FOR THE AWARD OF MASTER OF SCIENCE  
IN PROCUREMENT AND LOGISTICS**

**MPLM 821: PRODUCTION AND OPERATIONS MANAGEMENT**

**STREAMS: MPLM (Y1S2)**

**TIME: 3 HOURS**

**DAY/DATE: WEDNESDAY 08/8/2018**

**2.30 P.M. – 5.30 P.M.**

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**INSTRUCTIONS: Answer question ONE and any other THREE questions**

Q1. Read the case below and then answer the questions that follow

**Learn manufacturing at Plane's Ltd**

Plane's Ltd began implementing lean manufacturing principles in 1993. The company employed a Japanese consulting firm to assist in the task at 16 commercial air craft division. However, because of plane's decade-old operational inefficiencies, it failed to reap the benefits of lean manufacturing. Analysis felt that Plane's corporate culture was one of the reasons for the above failure. Though executives knew about the manufacturing problems, and the company-wide attitudinal problems, they wanted any corrective measures. This attitude was due to the environment in which the company was doing business for a long period. Its major customers mostly state owned airlines protected by regulation and the free spending US department of defense, never cared about the prices.

As a result of the above initiative, Plane's Ltd was able to reduce its inventory by dollars 1 billion by January 1999 and was also successful in reducing the manufacturing time by 60% and the manufacturing floor space by more than 50%.

## MPLM 821

This helped the company to lower the production cost and also freed the manufacturing capacity. Plane's Ltd utilized this opportunity by entering into contracts with Delta Airlines and Alaska Airlines for manufacturing of replacement floor panes for their airplanes

In 2002, Planes introduced an innovative manufacturing technique called "moving line" that further improved its production efficiency and quality levels. Though the company had used this technique earlier, the new aspect of this technique was the fusion of the moving line techniques with the lean manufacturing technique.

- (a) Identify any five problems that company faced in the early 1990s [10 marks]
- (b) Discuss the importance of lean manufacturing system in an organization [10 marks]
- (c) Discuss the importance of culture in organization productivity [10 marks]
- (d) Explain the strategies that this company can use to improve its operations [10 marks]

2. (a) The service sector is becoming more and more important in many economies. However some services are very inefficient. Discuss five indications of efficiency in a service system

[10 marks]

(b) Designing a service systems possess some special challenges that may not be encountered in designing production of physical good. Discuss any five challenges in designing a service system

[10 marks]

3. (a) Corner furniture limited designs and makes furniture in its industrial area workshop. Its target market is the high income earners. Initially the company's workshop was planned for 60 employees but the members have increased to 150. This has led to congestion and low productivity. The firm is also unable to meet customers' requirements as expected. Discuss any five benefits that corner furniture limited would derive from having a well-planned workshop layout

[10 marks]

(b) Discuss any five circumstances under which an organization may adopt fixed position plant layout [10 marks]

4. (a) Shortages of materials arising from poor inventory management may make an organization incur certain costs. Discuss any five ways in which such costs may arise [10 marks]
- (b) Wuta Ltd has opted to buy out its major input supplier as a strategic growth initiative. Discuss any five benefits that the organization may derive from this decision [10 marks]
5. (a) Capacity decisions are among the most fundamental of all the design decisions that managers must make. Discuss any five reasons that explain why capacity decisions are critical for an organization [10 marks]
- (b) Discuss the steps in the capacity planning process [10 marks]
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