



INDIAN INSTITUTE OF MATERIALS MANAGEMENT
Post Graduate Diploma in Materials Management

June 2011

PAPER No. 16

Business Strategies And World Class Practices

Date : 16.06.2011
Time : 2.00 p.m to 5.00 pm

Max. Marks : 100
Duration : 3 Hrs.

Instructions:

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|--|-----------------------|
| 1. The question paper is in three parts | |
| 2. Part A is compulsory. Each question carries one mark. | Total marks-32 |
| 3. In Part B answer any 3 questions out of 5. Each question carries 16 marks | Total marks-48 |
| 4. Part C is a case study with sub questions and it is compulsory. | Total marks-20 |
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1. Fill in the blanks. (Please do not reproduce the statement)
 - a) The critical factor of economic success during agriculture age was _____
 - b) The process that cut across national boundaries, integrating and connecting communities in new space-time combinations is called _____
 - c) Mass production strategy revolves around _____
 - d) The two kinds of set up operations are _____ and _____
 - e) _____ is called the deadliest waste.
 - f) At the work place relevant information are provided to the employees through _____
 - g) _____ is an action performed on the material by machines and workers.
 - h) The success of information age organizations depends on the _____ of employees.

2. Please state True or False
 - a) Industrial age was driven by physical labour.
 - b) Value added manufacturing focuses on eliminating labour from processes.
 - c) The goal of mass customization strategy is flexibility.
 - d) Malcom Baldrige award is a model for quality assurance.
 - e) Speculative production is the concept developed by Deming.
 - f) Taichi Ohno modeled the materials flow on the shop floor based on the supermarket system.
 - g) Devices that automatically detect defects or mistakes are called Bar code scanner.
 - h) A process is said to be in a stable state if the outputs produced are defect free.

3. Match A and B

- | A | B |
|--------------------------------|-----------------------------|
| a) CUSUM chart | 1) Elimination of waste |
| b) Time bucket | 2) Toyota production system |
| c) Robust quality | 3) Kaizen |
| d) JIT | 4) Control chart |
| e) Kanban | 5) Trend in variations |
| f) Continuous improvement | 6) MRP |
| g) Autonomation | 7) Taguchi |
| h) Statistical process control | 8) Pulling material |

4. Expand the following

- DPM
- CAE
- KPA
- PVA
- MTS
- MBO
- SQC
- TPM

PART B

- What is world class manufacturing? Explain the concept using the models proposed by Schonberger and Gunn.
- Explain the following
 - Production leveling
 - Theory of profound knowledge
 - Statistical process control
- What are the contributions of Shingo to WCM?
- Distinguish between
 - Common causes and special causes
 - External failure cost and internal failure cost
 - Judgmental inspection and informative inspection
 - Mass production and mass customization

9. Write short notes on any four
- a) Group technology
 - b) Cost of quality
 - c) Time based competition
 - d) Material Requirement Planning
 - e) Rapid prototyping

Part C

(Case Study)

10. When JIT is first successfully implemented in a company, the benefits are usually clear and appear substantial. But as the years go by, the rate of improvement decreases. To continue improving the operations, companies may adopt other approaches, to enhance their JIT manufacturing approach. The evolving operations of Amadas demonstrate such a strategy.

Amadas Industries manufactures agriculture machinery, including peanut combines and hard-hose irrigators, and industrial machinery, including equipment for processing horticultural mulches and for recycling organic waste products. With about 30 standard product models, agricultural machines are built in batches of 10 to 25 units, and industrial machines are built in batches of 1 to 3 units and are often custom designed.

In the 1990s Amadas decided to implement JIT. Significant benefits were realized in labour cost and lead time improvements. After a couple of years, the improvements projects and success continued, but it appeared that the number of success and benefits were declining. Taking further steps to reduce set up time on machinery, for example, would be expensive and would result in only marginal improvements. At first this was a matter of concern to management, but it was later recognized as a normal part of the maturing process of JIT manufacturing. The company needed a means of determining which projects now had the greater potential benefit and should be undertaken.

After studying different books Amadas management decided to adopt the theory of constraints (TOC) approach to analyzing the production system. The general goal of TOC analysis is to identify the bottlenecks in the production system that is currently limiting the amount or rate of production. The TOC analysis identified a CNC plasma torch as a constraint. Subsequently a set up reduction project was undertaken to change the material handling equipment being used.

Another constraint identified by TOC analysis was the purchasing department. To improve the timely availability of purchased parts, a Kanban system was then established for purchased parts. Arrangements were made with the suppliers and Kanban cards were made with suppliers and Kanban cards were posted at the storage locations. Continuous improvements are still an ongoing effort at Amadas, and both JIT and TOC are playing important role in this effort.

Questions:

- 1) What are the benefits that Amadas achieved by implementing JIT?
- 2) Achieving continuous improvements is a part of world class manufacturing. Do you agree?