

**INDIAN INSTITUTE OF MATERIALS MANAGEMENT**  
**DEC-2010**      **Post Graduate Diploma in Materials Management**

**PAPER 16**  
**BUSINESS STRATEGIES & WORLD CLASS PRACTICES**

**Date: 16.12.2010**  
**Time: 2.00pm to 5.00pm**

**Max. Marks 100**  
**Duration 3 hours**

**Instructions**

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 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 \_\_\_\_\_ age was driven by machines and blue collar workers.
    - b) Value added manufacturing focuses on eliminating \_\_\_\_\_.
    - c) Kinni characterizes WCM by three core strategies of customer focus, quality and \_\_\_\_\_.
    - d) The second challenge industries face today is how to manage \_\_\_\_\_.
    - e) The goal of mass customization is to improve \_\_\_\_\_.
    - f) Automation with human touch s called \_\_\_\_\_.
    - g) Taichi Ohno modeled the materials flow on the shop floor based on the \_\_\_\_\_ system.
    - h) Computerized calculation of raw material or component consumption from production data is called \_\_\_\_\_.
  2. Please state True of False
    - a) In the information age the ability of a company to mobilize and exploit intangible assets has become more decisive.
    - b) The process that cut across national boundaries, integrating and connecting communities in new space-time combinations is called international business.
    - c) Class A world class manufacturer should have fewer than 200% defects of any products it manufactures.
    - d) To be globally competitive companies need to achieve world-class performance.
    - e) The price, quality and reliability of product are determined by the manufacturing process.
    - f) The objective of TPM is to ensure zero downtime of equipment.
    - g) Production flexibility is related to the company's ability to introduce new products and modifications into current products.
    - h) According to Shingo an operation is an action performed on the material by machines and workers.

3. Match A and B

A	B
a) Economic evolution theory	1) Schonberger
b) Information age	2) Productivity
c) World Class manufacturing	3) Reduces defects
d) Product complexity	4) Five why's
e) Seven wastes	5) Process out of control
f) Informative inspection	6) Knowledge workers
g) Root cause analysis	7) Toffler
h) Assignable causes	8) Shigeo

4. Expand the following

- a. AMT
- b. MPS
- c. MBNQA
- d. SMED
- e. TPS
- f. ESI
- g. PDSA
- h. CAPP

**PART B**

5. Compare the models of world class manufacturing proposed by Schonberger, Gunn and Maskell.
6. Explain the following
  - a) SMED
  - b) Cellular manufacturing
7. Explain Deming's approach to quality management.
8. What are the various information management tools used in WCM?
9. Explain the issues involved in strategic planning for WCM.
10. Write short notes on any four
  - a) TOPP system of performance measurement
  - b) Hall's model of Value Added Engineering
  - c) The Supplier Interface
  - d) Porter's value chain
  - e) Production leveling

**Part C**  
**(Case Study)**

11. When Volkswagen AG decided to produce its new Beetle in Mexico, its goal was to transfer to that country the lean manufacturing techniques and supplier park concept employed at its SEAT subsidiary production facility in Martorell, Spain, one of the world's largest automotive production facilities in terms of daily output. The facility produces nearly 2000 cars daily in seven different models with the support of its pre-assembly supplier park located 2.2 kilometers from the factory. The challenge faced by Volkswagen was how to export quickly and efficiently this extremely effective just-in-time (JIT) supplier park model to Puebla, Mexico.

That's when Volkswagen invited Excel, the global logistics and supply chain services provider that designed, engineered, and now operates the SEAT Park, to work with them in Mexico. Excel had an established infrastructure in Mexico providing services to clients such as Procter & Gamble, which was expected to expedite the transfer process.

The SEAT Pre-Assembly Supplier Industrial Park in Spain was created near the factory to support its lean manufacturing strategy. Subassembly activities are carried out at the Park, guaranteeing JIT delivery and zero stocks at SEAT assembly lines. Twenty-five suppliers are located there, providing parts or subassemblies. Excel is responsible for primary transport from the component supplier's main plants to the Park, and also for warehousing, picking, subassembly and sequencing operations, and JIT deliveries to the SEAT assembly lines.

In January 1998, at Volkswagen's Mexican assembly plant in Puebla, Excel implemented the JIT sequencing operation; with limited modifications to the SEAT model. Currently, the Mexican plant produces more than 1600 vehicles daily including the Beetle and the Jetta. The operation provides parts and components to the assembly line with as little as one hour's notice. The Excel JIT sequencing operation is the cornerstone of a supplier industrial park that serves the Volkswagen assembly plant. Excel is responsible for the assembly, staging, and delivery of parts and components from more than a dozen suppliers in that industrial park to the assembly line. Parts delivery is scheduled to take place within 40 minutes of an order, with one car built every 40 minutes, 24 hours a day, 6 days per week. Parts are to be delivered directly to specific locations on the assembly line.

The end result is that Excel provides Volkswagen with expert logistics and supply chain management to support operations in a new, modular JIT manufacturing environment. Actually, this represented the first Volkswagen Mexico manufacturing park logistics operation to be managed by a single supply chain specialist. Overall, the involvement of Excel in Volkswagen's Puebla, Mexico operation demonstrates significant capability to transfer technology, human resources, and best practices on a global basis.

**Questions:**

- 1) What are the characteristics of the SEAT lean manufacturing model?  
(7 marks)
- 2) World class manufacturing encompasses activities beyond the shop floor activities. Explain.  
(8 marks)
- 3) Outsourcing is an important model in world class manufacturing. Explain based on the above case study.  
(5 marks)