



**INDIAN INSTITUTE OF MATERIALS MANAGEMENT**

**June 2013**

**Post Graduate Diploma in Materials Management  
Paper 18.E  
Total Quality Management**

**Date: 15.06.2013  
Time: 2.00 to 5.00 p.m**

**Max. Marks 100  
Duration 3 hours**

**Instructions**

1. The question paper is in three parts A, B & C.
  2. Part A is compulsory. Each question carries one mark. Total : 32 Marks
  3. In Part B, answer 3 questions out of 5. Each question carries 16 marks.Total : 48 Marks
  4. Part C is a case study with sub questions and it is compulsory. It carries 20 marks.
  5. Use of calculator is allowed wherever necessary.
  6. Graph sheets can be used wherever necessary.
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**PART A**

**( 1 x32 = 32 marks)**

**Q 1. Fill in the blanks**

- a. TQM provides an environment, where in all the employees take pride in their \_\_\_\_\_
- b. It is the management's responsibility to create right conditions & environment for \_\_\_\_\_ to flourish.
- c. There are \_\_\_\_\_ levels in the hierarchy of needs.
- d. In 1950, the Statistical Quality Control was introduced in Japan through \_\_\_\_\_
- e. Service is a \_\_\_\_\_, which takes place in direct contact between the customers and the company.
- f. Shiba's hierarchy of quality level consists of \_\_\_\_\_ fitnesses.
- g. The concept of quality improvement is a \_\_\_\_\_ process.
- h. The single act closely associated with quality control is \_\_\_\_\_

**Q 2. State True or False**

- a. Statistical sampling techniques reduce inspections costs.
- b. A quality audit manual contain procedure for data recording, processing and reporting
- c. Trying to outperform the best bench marking is the implementation of best practices.
- d. Zero Defect Day is management's commitment to quality within the factory premises.
- e. Quality Improvement Team consist of representatives of Quality Division.
- f. Quality is what the customers say it is not what the company says.
- g. Segregate quality-data, machine-wise, operator-wise and shift-wise.
- h. The International Organisation for Standardisation (ISO) was founded in 1981 in Paris.

**Q 3. Match the following**

**A**

- a. Golden Peacock National Quality Award
- b. Environment Management System
- c. Cause and effect Diagram
- d. Lead time, flexibility and quality
- e. Quality Assurance
- f. Value
- g. CEDAC
- h. Quality Council

**B**

- a. To bring quality experts together
- b. Appropriate Quality
- c. Ryuji Fukuda
- d. TC207 Mission
- e. Institute of Directors
- f. Inter dependent
- g. problem survey process
- h. price, quality & services

**Q 4. Expand the Following**

- a. SQC
- b. JIT
- c. DFM
- d. CWQC
- e. ACSI
- f. QFD
- g. ZQC
- h. LTPD

**PART B (any three) 16x3 = 48 marks**

**Q5.** Distinguish the various Quality Elements during the previous state and during the Total Quality Management era.

**Q6.** Explain the TQM frame work through a flow diagram.

**Q7.** Outline the various barriers/obstacles for a Quality Teams success.

Q8. Explain the customer driven definition of Quality.

Q9. List out the questions in a customer questionnaire model

### **Part C**

**(Case Study)**

**20 marks**

**Q10.**

The Directors of Mahindra UGINE Steel Co. Ltd (MUSCO) were worried about the loss of the company. On a turnover of Rs. 190.47 crore the loss was Rs.11.47 crore. The interest burden is Rs.9.38 crore per annum adding fuel to fire.

Today the company took the idea of increasing workers involvement in productivity through multiple skills, time analysis, self managing teams, suggestion analysis, kaizen, worker's education & training etc. All the employees know very well these quality terms and practicing as well. This changes work culture as the fallout of a HRD programme, the company has adopted as a part of the restructuring programme in 1994.

In 1995-96 the turnover has grown to Rs. 216.96 crores and the profit is Rs. 10.76 crores. The company is expecting an annual growth rate of 10-15%.

Along with the fiscal discipline, the CEO and his team realized that it is imperative to downsize their employees and increase labour productivity to reduce costs further.

The company exposed its manager and workers to a Canadian Steel Company's in house operation training which experienced miraculous recovery from problems to plenty. The Canadian Steel Co. has become a benchmark for MUSCO with 550 workers, the company produces 70,000 tons of steel. The training cost is Rs. 2.5 lakhs per employee including a daily allowance of \$150 for workers and \$200 for managers. The workers were given initial training in English language before the overseas training. The training abroad have done a lot to improve the morale of workers. The process of selection for the workers training is based on performance, team building, attendance, education and knowledge and the selection was done on merit though many workers are apprehensive that the union will be given first preference in the selection process.

As a result of this training, the absentees has reduced from 5.5% to 3%, reducing overtime from 10-12% to zero and employees not pressurising casual leave for union work. The trained workers reduced the costs, reduced the wastage and increased productivity in the steel melting units which accounts for 60% of total production cost.

The yield of metallic scrap to liquid steel has increased from 87% to 89.5% in two years compared to global standard of 90% and in other areas witnessed increase in productivity level.

Now the workers as a part of Total Employees Involvement, attend to customer grievances, and a strong contender for global benchmark.

**Questions:**

- a. What are the steps taken by his company to achieve Total Employees Involvement?
- b. In your opinion what are the other quality aspects can be taken up by the company towards achieving the goal?
- c. What are your suggestions to empower the employees apart from education and training?
- d. What are the gains of the company out of the overseas training in the light of internal problem faced by the company?

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