



# INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Dec 2012

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

Date: 15.12.2012  
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. Select the correct answer from the multiple choices.
- i) Which of the following is a characteristic of Total Quality Approach?
- |                   |                                       |
|-------------------|---------------------------------------|
| a) Customer focus | b) Tight inspection                   |
| c) Control chart  | d) Capital investment for improvement |
- ii) Identify the one that is not a dimension of product quality
- |                |                   |
|----------------|-------------------|
| a) Durability  | b) Serviceability |
| c) Reliability | d) Perishability  |
- iii) Which of the following is not a customer reaction resulting out of product or service characteristics?
- |                    |                 |
|--------------------|-----------------|
| a) Dissatisfaction | b) Delight      |
| c) Aversion        | d) Satisfaction |
- iv) Which of the following is not a belief of conventional quality management?
- a) Long-term quality initiatives are costly
  - b) Quality is adherence to internal specifications
  - c) Customer is the centre of all the activities of the organization
  - d) Suppliers are pitted against each other to get lower price

- v) A Characteristic not identified with Total Quality approach is
- Quality planning and strategic business planning are indistinguishable
  - Continuous improvement is needed to meet and exceed customer needs
  - Less number of suppliers to have long-term relationship
  - Enterprise as a collection of separate, highly specialized individual performers and units
- vi) In Deming's view, \_\_\_\_\_ is the chief culprit of quality
- Top management
  - Worker
  - Suppliers
  - Variability
- vii) All of them are part of the system of profound knowledge except
- Appreciation for a system
  - Theory of knowledge
  - Psychology
  - Quality trilogy
- viii) Normally what percentage of the variation in production process is attributed to common causes?
- 80
  - 60
  - 45
  - 20

Q.2. Fill in the blanks. (Please do not reproduce the statement)

- The purpose of existence of an organization is its \_\_\_\_\_
- Quality panning, quality improvement and \_\_\_\_\_ are known as quality trilogy.
- The search for best practices that will lead to superior performance is known as \_\_\_\_\_.
- Cause & effect diagram is developed by \_\_\_\_\_.
- The action that leads to elimination of potential errors from processes is called \_\_\_\_\_.
- The absence of \_\_\_\_\_ quality does not guarantee product success.
- An auditor should seek \_\_\_\_\_ not opinions during audit.
- 'Co-maker' concept was developed in \_\_\_\_\_.

Q.3. Please state True or False

- a) PDCA is also known as quality loop.
- b) QS9000 was developed by pharmaceutical companies.
- c) ISO 9000 is a quality assurance system.
- d) Control chart is used to detect the presence of common causes.
- e) International business is characterized by local production and international markets.
- f) A leader must live the values.
- g) Policy manual is mandatory in QMS documentation.
- h) Taguchi loss function is a measure of process variability.

Q.4. Match A and B

- | A                      | B                   |
|------------------------|---------------------|
| a) Zero defects        | 1) Off line quality |
| b) TQM                 | 2) Sample size      |
| c) QFD                 | 3) JIT              |
| d) MBNQA               | 4) Deming           |
| e) Self-certification  | 5) Crosby           |
| f) Acceptance sampling | 6) Customer focus   |
| g) PDCA                | 7) On-line delivery |
| h) Waste elimination   | 8) Quality award    |

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

Q.5. a) What is TQM? What are the pillars of TQM?

b) Implementation of TQM requires a paradigm shift in management. Explain.

Q.6. Explain the principles behind ISO 9000: 2000. Draw a roadmap for ISO certification.

Q.7. What is meant by statistical quality control? Explain the concept of Acceptance sampling.

Q.8. Explain the seven basic quality improvement tools?

Q.9. Write short notes on any four

- a) Cost of quality
- b) Supplier certification
- c) Quality audit
- d) QFD
- e) Benchmarking

### **Part C**

**(Case Study)**

**20 marks**

Q.10. The general manager of an elevator company had a common problem: He was utterly frustrated with the lack of coordination between the mechanical engineers who designed new elevators and the manufacturing engineers who determined how to produce them in the factory. The mechanical engineers would often completely design a new elevator without any consultation from the manufacturing engineers and then expect the factory to somehow figure out how to build it.

Often the new products were difficult or nearly impossible to build, and their quality and cost suffered as a result. The designs were usually sent back to the mechanical engineers (often more than once) for engineering changes to improve their manufacturability. While design and manufacturing played volleyball with the design; customers were forced to wait-often for months – for deliveries.

The general manager knew that if the two sets of engineers would simply communicate early in the design process, many of these problems could be eliminated before they occurred. At his wits' end, he found a large empty room in the facility and had the mechanical and manufacturing engineers working on the next product moved into the room, one group on one side and one on the other. Certainly if all they had to do to communicate was to walk from one side of the room to the other, communication would improve.

The manager relaxed somewhat, feeling that his problem had finally been solved. Upon returning to the new home of the engineers a few weeks later, he was in for a big

surprise. The two sets of engineers had finally learned to cooperate! They had cooperated in building wall of bookcases and file cabinets right down the middle of the room, effectively separating the large room into two separate offices, so they could continue as before.

**Questions:**

- a) What principles of TQM are illustrated or violated in this case?
- b) Why do people feel such strong allegiance to their functional departments?
- c) What could the general manager have done to improve the communication and the quality of the designs?

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