K 4398

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Eighth Semester

Chemical Engineering

MG 1401/PE 1452 — TOTAL QUALITY MANAGEMENT

(Common to Biotechnology, Polymer Technology, Textile Technology (Fashion Technology), Textile Technology, Textile Technology (Textile Chemistry) and Petroleum Engineering)

(Regulation 2004)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   How Quality is defined today?

2.   Write the importance of strategic decision making.

3.   How is the concept of customer value different from the concept of quality?

4.   What is 'Kaizen'?

5.   When should one use histogram and why?

6.   What is the significance of UCL and LCL in a control chart?

7.   Specify the salient Features of Total Productive Maintenance (TPM).

8.   What are the applications of FMEA?

9.   Highlight the benefits of Quality auditing.

10. List four different certifying agencies.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the seven basic steps in strategic planning? Explain. (8)

    (ii) Explain the role of senior management and quality council in TQM implementation. (8)

Or

   (b) (i) Explain Deming's 14 points on Quality management. (10)

    (ii) Enumerate the barriers to TQM implementation. Explain how would you tackle them? (6)

12. (a) (i) What does 5 S stands for? Explain its principles for work place effectiveness. (10)

    (ii) Briefly explain the continuous process improvement. (6)

Or

   (b) (i) Explain the methods used for assessing the customer satisfaction level in an industry and in a service organization. (10)

    (ii) Explain PDSA cycle with example. (6)

13. (a) A machine shop produces steel pins. The width of 100 pins was checked after machining and data was recorded as follows.

Width in mm	Frequency
9.50 – 9.51	6
9.52 – 9.53	2
9.54 – 9.55	20
9.56 – 9.57	32
9.58 – 9.59	22
9.60 – 9.61	8
9.62 – 9.63	6
9.64 – 9.65	4

    (i) Find the arithmetic mean, std deviation and variance. (6)

    (ii) What percentage of the pins manufactured has width of 9.52 to 9.53? (4)

(iii) With diagrams, explain how the histogram is more useful in problem solving than bar diagrams. (6)

Or

(b) In the second semester, a college introduced 'shift' system for classes, with good intension of providing about 4 to 5 hours of time at a stretch for studies and other useful purposes. It was expected that students would improve their studies and score good marks. On the contrary, many have failed in more subjects compared to the previous semester.

(i) Analyze this problem and draw a fish bone diagram. (6)

(ii) Identify the probable critical Factors (6)

(iii) Suggest methodologies for solving the problem. (4)

14. (a) (i) Explain the process used for bench marking and prove its superiority. (10)

(ii) 'Team work' is essential for the successful implementation of 'FMEA' Explain. (6)

Or

(b) (i) Explain the use of Quality function deployment (QFD) for launching a new product. (10)

(ii) Briefly explain 'Taguchi Quality loss function'. (6)

15. (a) (i) List and explain the six subjects addressed in ISO 14000 certification. (12)

(ii) What are the different components of a quality system? (4)

Or

(b) (i) Explain the procedure to be followed for getting a ISO 9000 certificate with the help of a case study.

(ii) Briefly explain about TS 16949.

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