

B.E/B.TECH DEGREE EXAMINATIONS: APRIL/MAY 2012

Eighth Semester

U07GM801: TOTAL QUALITY MANAGEMENT

Common to AERO/CIVIL/ECE/EIE/MCE/ME/FT/BT/IT/TXT

(Use of Statistical Tables may be permitted)

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following guru believed that the quality improvement issues should be presented in the language of management
A. W.Edwards Deming B. Joseph M.Juran C. Walter A.Shewart D. Phillip Crosby
2. Pick out the wrong statement
A. TQM focuses on quality control
B. TQM creates financial performance
C. TQM focuses on involvement and commitment of employees
D. TQM seeks proactive solutions
3. Team thinking involves all of the following except
A. functional classification and competition B. focus on team work
C. focus on system improvement D. focus on satisfying internal customers
4. Kaizen means
A. continuous improvement B. product improvement
C. process improvement D. all the above
5. Using SPC on a process in control, what is the number of units that will fall outside the ± 3 sigma limit of mean
A. 45 per thousand B. 63 per million C. 0 D. 3 per thousand
6. The mean and variance of the _____ distribution is equal
A. Binomial distribution B. Exponential distribution
C. Poison Distribution D. Hypergeometric Distribution
7. Who found the QFD
A. Ishikawa B. Masaaki Imai C. Taguchi D. Yoji Akao
8. OEE stands for
A. Overall Equipment Effectiveness B. Overall Equipment Efficiency
C. Overall Engineering Efficiency D. None of the above

9. ISO 9000 is a
- | | |
|--------------------------------|----------------------|
| A. product standard | B. System Standard |
| C. product and system standard | D. None of the above |
10. The management representative
- is a director
 - is the quality assurance manger
 - ensures the quality management system is maintained
 - all the above

PART B (10x2 = 20 Marks)

- Depict a graph showing relationship between different types of quality costs.
- What is the duties of a quality council?
- Draw Kano's model representing customer satisfaction?
- What do you mean by six sigma quality?
- List the 7 QC tools.
- Why process capability index is not effective?
- What is a critical success factor? How is it important in Benchmarking?
- How do you calculate RPN?.
- Draw the documentation pyramid and state the levels.
- Which of the elements in ISO 9001 are similar to ISO 14001.

PART C (5x14 = 70 Marks)

21. a) (i) Describe the views of gurus of TQM (7)
- (ii) Explain the six basic principles of TQM (7)
- (OR)**
- b) (i) Relate the characteristics of quality leaders with the habits of highly effective people in a Industry (7)
- (ii) Write an example of Mission, Vision and Quality policy of your dream company (7)
22. a) (i) Briefly explain the factors influencing the perception of quality by customers (7)
- (ii) Which are the best form of customer complaints and detail each one of them? (7)
- OR**
- b) (i) Explain how the concept of 5S improves quality in an organization with an illustration. (7)

(ii) When a supplier becomes a partner? Detail the elements of it. (7)

23. a) Following table contains the data on the weight of a plastic component in grams. This component is manufactured using a plastic injection molding process. Mean and range charts are required to be established for this process. Determine the trial central line and control limits.

Sample Number	X ₁	X ₂	X ₃	X ₄
1	6.35	6.4	6.32	6.37
2	6.46	6.37	6.36	6.4
3	6.34	6.4	6.34	6.36
4	6.69	6.64	6.68	6.59
5	6.38	6.34	6.44	6.4
6	6.4	6.4	6.29	6.34
7	6.38	6.44	6.28	6.58
8	6.35	6.4	6.37	6.38
9	6.56	6.55	6.45	6.48
10	6.38	6.4	6.45	6.37

Draw the mean and range charts and plot the values. State whether the process is under statistical control. If not, assume that the deviation occurred due to assignable causes which are rectified now. Revise the central line and control limits. Draw the revised mean and range charts and plot values. State whether the process is now under statistical control

(OR)

b) The following data have been collected from a manufacturing company. Construct a suitable control chart and comment on the outcome of the chart. Find the revised control limits also for future control. State your opinion if the points fall below the LCL of the chart that you draw in this given situation

	1	2	3	4	5	6	7	8	9	10
Sample size	100	100	100	100	100	100	100	100	100	100
Non-conforming units	3	1	0	0	2	6	3	5	1	4

24. a) (i) What are the advantages and disadvantages of benchmarking? (6)
(ii) Discuss the process of QFD (8)

(OR)

- b) (i) Explain why Taguchi's quality loss function is important for an organization to improve quality with an illustrative example. If the specifications are 10 ± 2 for a quality characteristic and the average repair cost is Rs 250/=, determine the loss at $y=11.5$ (6)
(ii) Make out case study of implementing FMEA in a company of your choice. (8)

25. a) (i) Discuss the major steps in implementing ISO 9000 in a company with a time-schedule and list of activities to be undertaken (7)
(ii) How does an internal audit helps to improve the quality with an example. (7)

(OR)

- b) (i) Detail the requirements of ISO 14001 (7)
(ii) List out the objectives and targets in a place where you live keeping in mind ISO 14001 (7)
