

APJ Abdul Kalam Technological University

Ernakulam II Cluster

First Semester M.Tech Degree Examination December 2017

05 ME6407- QUALITY ENGINEERING AND MANAGEMENT

Time: 3 hrs.

Max. Marks: 60

1.

- a) Explain the concept of Optimum Cost of Quality with diagram. (6 Marks)
- b) Write short notes on Quality policy (2 Marks)
- c) Write short notes on Cost of Quality (2 Marks)
- d) Write short notes on Quality assurance (2 Marks)

2.

- a) The following table refers to the average number of outlet leaks per radiator for 10 lots of 100 radiators each. Establish U chart for future production. (7 Marks)

Lot No	1	2	3	4	5	6	7	8	9	10
No of leaks	15	17	12	16	14	5	14	11	9	10

- b) Explain double sampling plan with steps. (5 Marks)

3.

- a) Explain parametric design with an example. (6 Marks)
- b) Explain QFD with a suitable example. (6 Marks)
- c) Suppose that a certain part dimension is specified as $100.0 \pm 0.20\text{mm}$. To investigate the impact of this tolerance on product performance, the company has studied its repair records to discover that if the $\pm 0.20\text{mm}$ tolerance is exceeded, there is 60% chance that the product will be returned for repairs at a cost of \$100 to the company (during the warranty period) or to the customer (beyond the warranty period). Estimate the Taguchi loss function constant k for these data. (6 Marks)

OR

- 4.
- a) "Building House of Quality" is a complex task. List out the various steps involved in it using a suitable example. (6 Marks)
 - b) Explain the tolerance design with an example. (6 Marks)
 - c) Explain the concept of signal to noise ratio. (6 Marks)
- 5.
- a) "Total quality management is too important to be taken up in the organization". Do you agree with this statement? Justify your view points with case study. (6 Marks)
 - b) Describe DMAIC and its phases. (6 Marks)
 - c) Describe the purpose of an ISO 9000 quality system. (6 Marks)

OR

- 6.
- a) "The applicability of TQM has limitations". How far do you agree with this statement? Can TQM be implemented in service sectors? (6 Marks)
 - b) Outline the various challenges in six-sigma implementation. (6 Marks)
 - c) Explain the implementation and documentation of Quality System. (6 Marks)