

**B.Tech. MECHANICAL ENGINEERING
(COMPUTER INTEGRATED MANUFACTURING) /
B.Tech. AEROSPACE ENGINEERING (BTAE)**

00133 Term-End Examination

December, 2016

BME-007 : QUALITY ENGINEERING

Time : 3 hours

Maximum Marks : 70

*Note : Attempt any **five** questions. All questions carry equal marks. Use of non-programmable scientific calculator is allowed.*

1. (a) Define Quality. Give the difference between Quality of Design and Quality of Conformance.
- (b) What are the key success factors for proper functioning of TQM ? Explain. 7+7

2. (a) Explain the concept of 5 'S' in the context of quality improvement of workplace. Discuss the significance of each 'S'.
- (b) What according to Crosby, are the five symptoms of a problem organization ? Briefly describe the four absolutes of quality. 7+7

3. (a) Define cost of failure, cost of appraisal and cost of prevention. Explain why cost of prevention increases if the other two reduce.
- (b) What are the essential elements of evaluation of the performance of a supplier during the execution of a contract ? In what way would the supplier surveillance benefit the purchaser company in maintaining the quality of its product ? 7+7
4. (a) Differentiate between quality assurance and quality control.
- (b) What is quality audit ? Name and describe the various types of quality audits with examples. 7+7
5. (a) Differentiate between KAIZEN and Innovation.
- (b) What are the different types of documents required for ISO 9000 certification ? List down five major benefits of implementing ISO 9000. 7+7
6. (a) Calculate the probability of acceptance of a lot containing 7% defective by a single sampling plan with acceptance number 2 and sample size 100.

- (b) Beta Auto Company manufactures head lights of two-wheelers on mass production basis. At some intermediate point of production line, 15 samples of size 50 each have been taken. Head lights within each sample were classified into good or bad. The related data are given in the following table. Construct a p-chart with 3-sigma limit and write your comment on the process.

<i>Table</i>		
<i>Sample Number</i>	<i>Number of Defective Head Lights</i>	<i>Percentage of Defective Head Lights</i>
1	10	0.20
2	10	0.20
3	9	0.18
4	10	0.20
5	4	0.08
6	6	0.12
7	2	0.04
8	3	0.06
9	9	0.18
10	4	0.08
11	8	0.16
12	11	0.22
13	8	0.16
14	10	0.20
15	9	0.18

7+7

7. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Essential characteristics of Quality Circles
 - (b) Customer's Needs
 - (c) Maintainability
 - (d) Cause-and-Effect Analysis
 - (e) Failure Mode and Effects Analysis
 - (f) QFD and its limitations
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