

01120

**BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)
B.Tech. (AEROSPACE ENGINEERING)**

Term-End Examination

June, 2013

BME-007 : QUALITY ENGINEERING

Time : 3 hours

Maximum Marks : 70

Note : Attempt any ten questions. All questions carry equal marks. Use of statistical tables is permitted. Assume missing data if any.

1. (a) How does quality of design differ from quality of conformance ? 3½
- (b) What is quality audit ? Name and describe the various types of quality audits. 3½

2. (a) Discuss Deming's approach to total quality management. 3½
- (b) What guidelines must be followed while implementing TQM ? 3½

3. (a) What do you understand by Taguchi loss function ? Discuss in brief. $3\frac{1}{2}$
- (b) In a factory producing spark plug the number of defectives found in inspection of 20 lots of 100 each, is given below in table-I. Construct p - chart and state whether the process is in statistical control. $3\frac{1}{2}$

Table - I

Lot No.	No. of defectives	Lot No.	No. of Defectives
1	5	11	4
2	10	12	7
3	12	13	8
4	8	14	3
5	6	15	3
6	4	16	4
7	6	17	5
8	3	18	8
9	3	19	6
10	5	20	10

4. (a) Discuss the role of various participants in Six Sigma implementation $3\frac{1}{2}$
- (b) What is benchmarking ? Briefly describe the steps to be followed in benchmarking process. $3\frac{1}{2}$
5. (a) How would Quality Function Deployment (QFD) improve the system ? What are some limitations of the QFD approach ? $3\frac{1}{2}$
- (b) What are quality objectives of Failure Mode and Effects Analysis (FMEA) ? $3\frac{1}{2}$

6. (a) How does pareto analysis and cause - and - effect diagrams help in quality improvement. 3½
- (b) Discuss different components of cost of quality. 3½
7. (a) Define availability. A system has a mean time between failures of 120 hrs and a mean time to repair of 10 hr. What is the inherent availability. 3½
- (b) Find the reliability of the system shown in fig-1. 3½

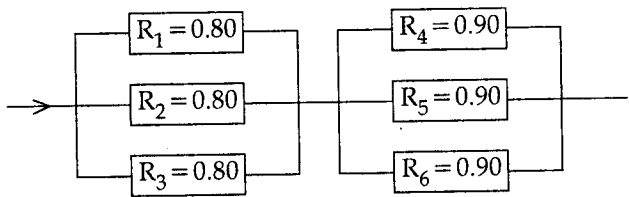


Fig. (1)

8. (a) What are customer values and how do they affect company's performance? 3½
- (b) How activity based costing (ABC) can be used to identify quality cost? 3½
9. (a) What are basic principles of total quality control according to Feigenbaum? Mention IM factors suggested by him. 3½
- (b) Describe assignable and random causes of variability in the process. 3½

10. (a) Discuss unique features of Central Limit Theorem. $3\frac{1}{2}$
- (b) The mean of Grade Point Average (GPA) at a particular college is 3.5 with a standard deviation $\sigma=0.71$. A random sample of 30 students is collected. Find the probability that the mean GPA for this sample is greater than 4.0. $3\frac{1}{2}$
11. Write short notes on *any two* : $3\frac{1}{2}+3\frac{1}{2}$,
- (a) Concurrent Engineering
- (b) Poka - Yoke
- (c) Operating Characteristic (OC) curve
- (d) Kaizen
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