MODEL QUESTION PAPER

Seventh Semester B.Tech Degree Examination

(2013 Scheme)

13.704 QUALITY ENGINEERING (N)

Time: 3 Hours Max.Marks: 100

PART A

Answer ***all*** questions. Each question carries ***two*** marks.

1. Distinguish between quality of design and quality of conformance.
2. Write notes on quality assurance.
3. What do you mean by process is in statistical control ?
4. List out the advantages of control chart for attributes over those for variables.
5. Differentiate between a p chart and c chart.
6. What is acceptance sampling? why it is used in practice ?
7. What is meant by rectifying inspection ?
8. Explain the advantages of standard sampling plans.
9. Distinguish between fault tree analysis and event tree analysis.
10. What is DPMO ? Explain. (2X10)

PART B

Answer any ***one*** full question from each module.Each full question carries ***twenty*** marks

Module I

11. a) Discuss the contributions of W.Edward Deming for assuring continuous quality improvements.
    b) Describe the various quality costs.

12. a) Discuss the role of Quality Engineering in product design.
    b) Explain Taguchi's Loss function for the situation target is the best

Module II

13. a) Explain the importance of Normal curve in sampling theory.
    b) A sub group of 5 items each are taken from a manufacturing process at a regular interval. A certain quality characteristic is measured and X bar and R values computed. After 25 subgroups it is found that $\sum X$ bar = 357.5 and $\sum R$ = 8.8. If the specification limits are 14.40 ± 0.40; and if the process is in statistical control, what conclusions can you draw about the ability of the process to produce items within specifications?

14. a) Explain the concepts of process capability. Discuss about Cp and Cpk indices.
b) Construct an appropriate control chart and infer properly.

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of defects	5	3	0	11	8	3	0	5	4	3	7	4	1	0	9

Module III

15. a) Explain the steps in the construction of OC curve for a single sampling plan.
b) Discuss about sequential sampling plan

16. a) Explain the salient features of Dodge – Romig sampling plans.
b) Construct an AOQ curve and find AOQL for the sampling plan N = 1000, n = 20, c = 1.

Module IV

17. a) Explain the DMAIC methodology in six sigma.
b) Describe the steps and key concepts in FMEA

18. a) Explain with figures the steps in building house of quality in QFD.
b) Discuss about ISO 9000 series. (4X20)