

Roll No.

23060

**M. Tech. 2nd Semester (M.E.)
(Manufacturing & Automation) (Elective-I)**

Examination – December, 2014

QUALITY CONTROL TECHNIQUES

Paper : 925/M-608-A(D)

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All questions carry equal marks.

1. What do you mean by quality control ? Explain role of continuous and discrete distribution of probability in by quality control.
2. (a) What do you mean by product and process control and explain the process used in product and process control in manufacturing industry.
(b) Explain the different cause of variation in quality of a product.

3. (i) What do you mean by control chart ? Explain the uses of control chart in a manufacturing industry.
(ii) Explain the role of $\bar{X}$, R and P chart in quality control.
4. Define and explain type I and type II errors in the context of control charts. How does the choice of control limits influence these two errors ?
5. Discuss the assumptions that must be satisfied to justify using a p-chart. How are they different from the assumptions required for a C-chart ?
6. Explain the difference between natural tolerance limits and specification limits. What assumption is made in constructing the natural tolerance limits.
7. (a) Discuss the relative advantages and disadvantages of single, double and multiple sampling plans.
(b) Explain the concept of type A and type B.O.C curves.
8. (a) Explain the terms AOQ and AOQL for single sampling and double sampling plans.
(b) Differentiate the attribute sampling plan and variable sampling plan.