23060

M. Tech. 2nd Semester (M.E.) Manufacturing & Automation Elective–I Examination, May–2015

QUALITY CONTROL TECHNIQUES

Paper–925/M-608-A (D)

Time allowed : 3 hours] *[Maximum marks : 100*

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

1. What do you mean by quality ? Explain the importance and different factors affecting quality of a product. 20

2. (a) Define Quality control and SQC. What are the aims of SQC ? What are the advantages of SQC ? 10

   (b) Discuss the concept of probability distributions in detail. 10

3. Discuss the various process control charts used in controlling the quality and explain the X, R and P chart. 20

4. Discuss the relationship of process in control to upper and lower specification limits and process capability study. 20

5. A manufacturer of pins knows that on an average 5% of his product is defective. He sells pins in a packet of 100 and guarantees that not more than 5 pins will be defective. What is probability that a packet will meet the guaranteed quality ? Given $e^{-5} = 0.0067$ use Poisson's distribution. 20

6. (a) Construct an OC curve from the following data. Sample size 40=40 acceptance number =2 would the OC curve be different if the sample size in doubled ? If not why, if not chart it. 10

(b) Discuss the binomial distribution with suitable example.

7. Explain the terms AOQ and AOQL for single sampling and double sampling plans. Also discuss the advantages and disadvantages of variable sampling plans over those for attributes. 20

8. Write short note on the following :

(a) Average sample number

(b) Quality rating

(c) Cumulative sum control chart. 20