

Indian Statistical Institute, Bangalore
MS (QMS) First Year
Second Semester - Advanced Statistical Process Control

Final Exam
Maximum marks: 60

Date: April 27, 2026
Duration: 3 hours

1. [10 + 15 + 5 = 30]
 - a) State the purpose and method of implementation of Taguchi β -correction technique; by estimating the formula of β .
 - b) Data collected from the process in an interval of 5 minutes.
15, 10, 10, 10, 15, 15, 17, 15, 15, 12, 18, 15, 15, 18, 18, 20
 - i) Compute the no correction zone (Target = 15).
 - ii) Calculate the amount of correction when process mean is 20 and 27.
2. [3 + 10 = 13]
 - a) State the purpose of chain sampling plan.
 - b) Compare the following plans
 - i) $n = 5, i = 3$ [Chain Sampling]
 - ii) $n = 20, c = 0$
3. [3 + 10 + 2 = 15]
 - a) Illustrate csp-1, csp-2, csp-3 plans.
 - b) Compute the AQL, LTPD values for the csp-1 plan $i = 50, f = \frac{1}{5}$
 - c) Calculate AOQL.
4. [3 + 3 + 4 = 10]
 - a) State the difference between attribute sampling and variable sampling plan.
 - b) How to find out, weather a single sampling plan is protecting the customer when used as an incoming inspection method.
 - c) The average and s.d of a measureable characteristic found to be 5.23 mm and 1.03 mm. If the loss increases by Rs. 1 for each s.d from target. Calculate loss for this process when specification is 5 ± 1 mm.