PROCESS CONTROL IN SPINNING AND WEAVING

TTL 764

Major Test 1 (03.05.2008)

1) What is process capability index? What is the significance of process capability less than 1, equal to 1 and greater than 1?

(5)

2) Calculate the values of Cp and Cpk if the specification limits are

   a) $\pm 2\sigma$ when the process is off-centered by σ.
   b) $\pm 3\sigma$ when the process is off-centered by 2σ.

(5)

3) Derive the relationship between CV% and PMD if the mass of yarn is following normal distribution.

(5)

4) How linear programming is used for solving the product mix problem of spinning industry? What is the difference between the sensitivity analysis of cost coefficients and right hand side constraints in case of LPP?

(5)

5) What is Analytic Hierarchy Process (AHP)? Explain how AHP could be used for the cotton fibre grading in the spinning industries.   (5)

6) What is artificial neural network (ANN)? Show the input-output structure of ANN model for

   a) Fibre property prediction from yarn properties
   b) Process parameter prediction from yarn properties   (5)