ASSIGNMENT 09:
SINGLE SAMPLE ACCEPTANCE SAMPLING AND MIL STD 105E

A company is negotiating a single sampling acceptance sampling plan. It has been decided that the customer can live with a lot tolerance percent defective equal to 0.20 as long as the alpha risk is 0.10. The supplier decides that they can accept a beta risk of 0.005 if the average quality level is 0.03, during production of lots of size 4 000.

Find the most appropriate sample size and acceptance number using the binomial nomograph (below).
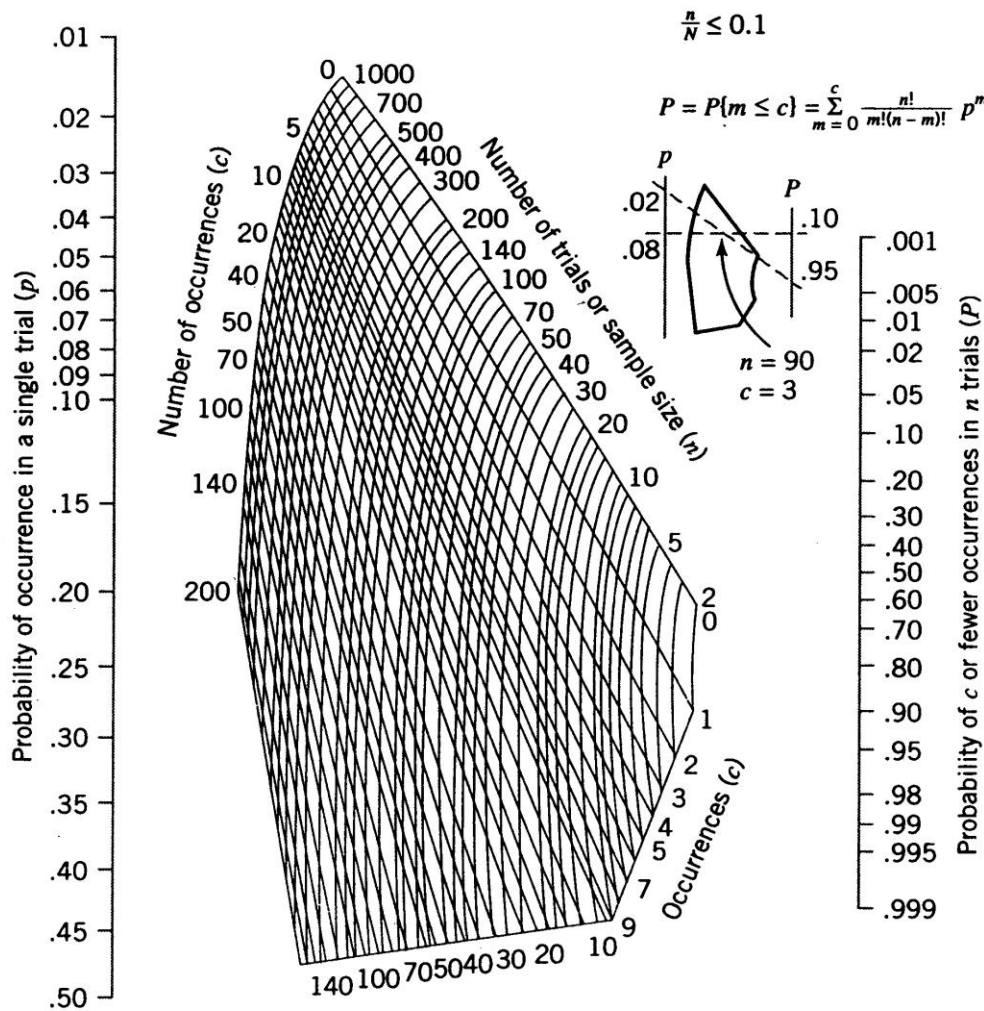
$$\frac{n}{N} \leq 0.1$$

$$P = P\{m \leq c\} = \sum_{m=0}^{c} \frac{n!}{m!(n-m)!} \, p^m (1-p)^{n-m}$$

Figure 14-9   Binomial nomograph.

n = _____

c = _____

A company wishes to sell toothpicks to the military, which will use MIL STD 105E to perform single-sample acceptance testing on lots of 100 000 toothpicks. Assuming that the toothpicks are not critical components, the lowest level of discrimination is appropriate for inspection. The company expects to have an average quality level of 10% defective. Use the appropriate tables in the handout to complete the sampling plan table.

Sample Size Code Letter: _____

Type of Inspection	Sample Size	Acceptance Number (A_c)	Rejection Number (R_e)
Reduced Inspection			
Normal Inspection			
Tightened Inspection			

Under Normal Inspection, what is the maximum number of defective toothpicks that the inspector may find in the sample without rejecting the lot?

Under Reduced Inspection, what is the maximum number of defective toothpicks can the inspector find before rejecting the lot?

Beginning at Reduced Inspection, what type of inspection would result next, if the inspector found the defective toothpicks in the sample to be one less than the Acceptance Number?

Beginning at Reduced Inspection, what would happen if the inspector rejected 12 lots in a row, beginning with the product being checked under Reduced Inspection?

Write an expression for (inserting known values), and use Excel to estimate the probability that a lot will be accepted under Normal Inspection if exactly 8 percent of the toothpicks are defective.