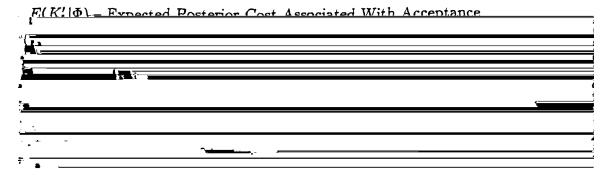## Appendix A: Statistical and Economic Terms

X – Product Quality Characteristic

L – Lower Specification Limit Of X

U – Upper Specification Limit Of X

N – Lot Size

n – Sample Size

$\bar{x}$ – Sample Mean

μ – Mean Of The Quality Characteristic X

σ^2 – Variance Of The Quality Characteristic X

m – Mean Of The Mean μ

c – Acceptance Number Under Attribute Sampling

s – Number Of Defectives In A Sample Under Attribute Sampling

K_R – Sales Price Of An Item

K_p – Production Cost Of An Item

K_J – Junk Value Of A Scrapping Item $= 0$ In This Model

K_A – Cost Of Accepting A Defective Item Delivered To The Consumer

p – Fraction Of Items Defective

p' – Minimum Variance Unbiased Estimate Of The Fraction Defective p

$1 - \alpha$ – Minimum Probability Of Accepting A Lot Given A Lot Of Acceptable Quality

$1 - \beta$ – Maximum Probability Of Rejecting A Lot Given A Lot Of Rejectable Quality

C_1 – Prior Cost Function Associated With The Decision To Accept Outright

C_2 – Prior Cost Function Associated With The Decision To Reject Outright and scrap

p_1 – Profit Per Item To Accept The Lot Without Sampling

p_2 – Profit Per Item To Reject The Lot Outright

p_3 – Expected Posterior Profit Per Item For Accepting The Remainder Of The Lot

p_4 – Expected Posterior Profit Per Item For Rejecting And Scrapping The Remainder Of The Lot

p_5 – Profit Per Item Resulting From Sampling And Scrapping n Units

K_1' – Posterior Cost Function Associated With Acceptance

K_2' – Posterior Cost Function Associated With Rejection

$E(K_1'|\Phi)$ – Expected Posterior Cost Associated With Acceptance

$E(K_2'|\Phi)$ – Expected Posterior Cost Associated With Rejection

$K(n, \Phi_n^{01}, \Phi_n^{02})$ – Cost Equation In Terms Of The Sample Size n And An Upper And Lower Limits Of The Parameter Φ_n.

σ_μ^2 – Variance Of The Mean μ (In This Work σ_μ Is Assumed Known)

$f(x|\mu)$ – Conditional Probability Density Function Of The Quality Characteristic (X) Given μ

$h(\mu)$ Probability Density Function Of The Mean μ