MA30118 - Question Sheet Three

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Attempt all questions. Hand in by 17:00 Tuesday 28th March either to me in lectures, or the envelope on my door, 1W4.8.

1. Plot the OC curve for a single sampling scheme with $n = 50$ and $c = 2$. Taking the producer's risk and consumer's risk as 0.05 and 0.1 respectively, use the graph to estimate the AQL and LTPD. [You may use your favourite graphical package to achieve this, or do it by plotting the OC at a number of values of p, say 0, 0.02, 0.04, 0.06, 0.08, 0.10, 0.12 and 1.]

2. Suppose that we wish to construct a single sample scheme with $AQL = 0.02$, $LTPD = 6$, and producer's and consumer's risk equal to 0.05 and 0.1 respectively.

   (a) Use tables to determine suitable values of n and c.

   (b) Check your answers by calculating the producer's risk and the consumer's risk for your choice of n and c with the given AQL and $LTPD$.

3. A double sampling scheme has $n_1 = 50$, $n_2 = 70$, $c_1 = 1$ and $c_2 = c_3 = 3$.

   (a) If the $AQL = 0.01$ and $LTPD = 10$, calculate the producer's risk and the consumer's risk.

   (b) Plot the ASN for the scheme. [Again, by either using your favourite graphics package or evaluating ASN(p) at a number of values of p, say 0, 0.02, 0.04, 0.06, 0.08, 0.10, 0.12, 0.14, 0.16, 0.18, 0.20 and 1.]