**Sample size Calculation Exercise**

1. A study has been planned to estimate the proportion of first year students who currently smoke. What is the minimum sample size for the estimate to be within 5 % of the true proportion and a 95% confidence interval.

2. A randomized controlled trial has been planned to evaluate a brief psychological intervention in comparison to usual treatment in the reduction of suicidal ideation amongst patients presenting at hospital with deliberate self-poisoning. Suicidal ideation will be measured on the Beck scale; the standard deviation of this scale in a previous study was 7.7, and a difference of 5 points is considered to be of clinical importance. What is the minimum sample size required at 5% significance and 80% power?

3. A randomized trial is to be conducted comparing two new treatments aimed at increasing the weights of malnourished children with a control group. The minimal worthwhile benefit is an increase in mean weight of 2.5kg, and the standard deviations of weight changes are believed to be 3.5kg.What are the required sample size assuming an 80% power is required for the comparison? (0.05 level of significance)