**GE2262 Business Statistics, 2020/21 Semester A**

**Individual Assignment 2**

**Instructions:**

1. Fill in your particulars at the top of this page.
2. Answer all questions in the space provided below.
3. Show all calculations clearly.
4. Display all non-integer numeric values to 4 decimal places.
5. Late submission penalty: deduct 10% of the base score per day.

**Question 1 (6 marks)**

The weights of female students are normally distributed with a mean of 110 lbs and a standard deviation of 20 lbs. What is the cut off value for the top 5% of the weights? If the weight of Yan-Yee is 150 lbs, will she be in the top 5%?

**Question 2 (11 marks)**

Systolic blood pressure for women between the ages of 18 and 24 is normally distributed with a mean of 114.8 (mm of mercury) and a standard deviation of 13.1 (mm of mercury).

1. What is the probability that an individual woman has a blood pressure above 125? (5 marks)
2. Suppose a random sample of n = 50 women is selected and the mean blood pressure for the sample is computed. What is the probability that the mean blood pressure for the sample will be above 125? (6 marks)

**Question 3 (13 marks)**

The IQ test scores of 30 Form 6 students in Kowloon Tong district are shown below.

114 123 142 76 92 81 124 134 113 95

118 120 143 142 101 108 137 129 86 72

81 73 64 102 67 73 138 146 126 112

1. Treat the 30 students as a random sample from the population of all Form 6 students in the district. Assuming that the population standard deviation of IQ scores is known to be 23, find a 95% confidence interval for the mean score of the population. (8 marks)
2. How large a sample of students would be needed in order to estimate the mean IQ score within ± 8 points with 90% confidence? (5 marks)