Name: **Student No.:**

EID: **Tutorial Session Code:**

GE2262 Business Statistics, 2021/22 Semester B
Individual Assignment 1

Instructions:
1. Due on March 5, 5pm.
2. Fill in your particulars at the top of this page.
3. Answer all questions in the space provided below.
4. Show all calculations clearly.
5. Display all non-integer numeric values to 3 decimal places.
6. Late submission penalty: deduct 10% of the base score for late submission within 24 hours.

Question 1 (15 marks)

The following table shows the percentage decreases in share values for 28 largest common stock mutual funds in Hong Kong on a trading day.

4.1	6.0	5.8	3.9	3.8	5.6
3.0	4.9	5.2	4.2	3.3	4.3
3.3	3.6	10.5	4.4	5.4	8.6
4.4	3.5	3.3	3.8	6.4	
4.7	10.4	4.0	4.7	7.2	

(a)   Compute the median and mode of the data. (2 marks)

(b)   Find the mean, standard deviation and variance of the data. (3 marks)

(c)   Determine the range, interquartile range of the data. (2 marks)

(d) List the five-number summary of the data. Form the box-and-whisker plot. Are the data skewed? If so, how? (5 marks)

(e) What percentage of the data within ±1, ±2 and ±3 standard deviation of the mean? (3 marks)

Question 2 (5 marks)

A bank manager measured the time between customer arrivals to the bank during a time period and constructed the probability distribution of the number of customer arrivals per 15 minutes as follows:

Number of customer arrivals per 15 mins	16	17	18	19	20	21
Probability	0.1	0.2	0.3	?	0.1	0.1

(a) Find the missing probability value. (1 mark)

(b) Calculate the expected number of customer arrivals. (2 marks)

(c) Find the probability that the number of customer arrivals is more than 18. (2 marks)

Question 3 (10 marks)

The director of a large employment agency wishes to study various characteristics of its job applicants.   A sample of 200 applicants has been selected for analysis.   Seventy applicants have had current jobs for at least five years; 85 of the applicants are college graduates; 30 of the college graduates have had their current jobs at least five years.   What is the probability that an applicant chosen at random:

(a)   is a college graduate? (2 marks)

(b)   is a college graduate and has held the current job less than five years? (2 marks)

(c)   is a college graduate or has held the current job at least five years? (3 marks)

(d)   has held the current job at least five years given that he/she is not a college graduate? (3 marks)

Question 4 (20 marks)

A big company assesses how well their contract staffs are doing on a scale from 0 to 100. Assume that the assessment scores follow a normal distribution with mean 65 and standard deviation σ. The company will renew the contract if a staff achieves a score at least 60.   Five percent of the staffs got a score at least 90.

(a)   Find the value of σ. (4 marks)

(b)   A staff is selected at random.   Find the chance that he/she gets contract renewal. (3 marks)

(c)   What is the minimum score needed in order to be in the top 10% of all staffs in that company?
     (3 marks)

(d)   What is the probability of a randomly selected staff obtaining an assessment score of 70?
     (2 marks)

(e)   For a randomly chosen staff, state, without doing the calculations, in which of the following
     ranges his or her score is most likely to be: A. 60-70, B. 70-80, C. 80-90, D. 90-100. (2 marks)

(f)   Suppose 10 staffs are randomly selected.   What is the chance that at least 2 of them get
     contract renewal. (6 marks)