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

**Individual Assignment 1**

**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 (15 marks)**

The Grade Point Averages (GPA) of 30 selected students studying in business administration and their majoring subjects are as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GPA | Major Subject | GPA | Major Subject | GPA | Major Subject |
| 2.21 | AC | 2.98 | MKT | 3.23 | MS |
| 2.29 | FIN | 1.77 | FIN | 1.97 | MKT |
| 2.73 | AC | 2.55 | IS | 2.81 | AC |
| 2.66 | MKT | 2.76 | MS | 3.01 | AC |
| 3.07 | MS | 2.70 | MKT | 3.63 | FIN |
| 2.83 | MKT | 3.11 | MS | 1.80 | IS |
| 3.34 | IS | 2.88 | AC | 2.49 | MS |
| 3.48 | AC | 3.25 | IS | 2.72 | AC |
| 2.17 | FIN | 2.17 | IS | 2.54 | FIN |
| 2.39 | IS | 2.61 | FIN | 2.34 | FIN |

Key: AC – Accountancy FIN – Finance IS – Information System

MKT – Marketing MS – Management Sciences

**(a) Describe the shape of the GPA’s by using the five-number summary. (8 marks)**

As,

the data are **left-skewed**.

**(b) Calculate the mean, median and standard deviation of GPA for majoring subjects AC, FIN and IS respectively. (3 marks)**

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| --- | --- | --- | --- |
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|  |  |  |  |

**(c) Based on the results from (b), make a comparison of GPA among different subjects. (4 marks)**

Within majoring subjects AC, FIN and IS, subject AC has the highest mean with 2.8343 and the highest median with 2.81, while it has the smallest standard deviation with 0.3514, which means the GPA of this subject is more even than the other two subjects while the mean is the highest.

Within all five subjects, subject MS has the highest mean with 2.932 and the highest median with 3.07, while it has the smallest standard deviation with 0.2700, which means the GPA of this subject is more even than the other subjects while the mean is the highest.

**Question 2 (6 marks)**

The term-test results of two subjects, Management Sciences and Accountancy, for the first-year students in the College of Business are summarized in the following contingency table:

|  |  |
| --- | --- |
|  | **Management Sciences**  Good Average Poor |
| Good  **Accountancy** Average   Poor | 83 171 104 112 26695 39 48 20 |

where, for example, the number 83 means that 83 of the students are good in both Management Sciences and Accountancy, etc.

If one student is selected randomly from all first-year students of the college, what is the probability that the student is

**(a) good in at least one subject? (3 marks)**

**(b) not poor in Accountancy? (3 marks)**

**Question 3 (9 marks)**

The probability is 0.8 that a person age 70 will be alive at age 75.

Suppose 10 people age 70 are selected at random. Determine the probability that exactly 8 of them will be alive at age 75. What probability distribution are you using? Why can you use such a probability distribution?

The probability distribution is a **Binomial Distribution**.

The reasons are the followings: Firstly, those 10 people can be considered as repetition of identical trials, also the outcomes are two mutually exclusive outcomes which are dead or alive, and there is a constant probability of success which is 0.8. Lastly, all 10 people are independent. So, we can consider the distribution is a Binomial Distribution.