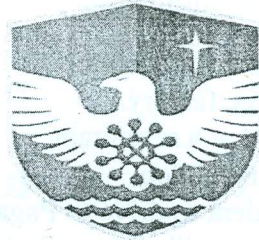


CENTRAL UNIVERSITY



END OF SECOND SEMESTER EXAMINATION 2018

CENTRAL BUSINESS SCHOOL

DEPARTMENT OF ACCOUNTING

KUMASI CAMPUS

CBFW102: BUSINESS STATISTICS

JUNE, 2018

Do not turn over this page until you have been told to do.

Examiner: Emmanuel Buabin

Question 1

Compulsory

- A. Classify each variable as discrete or continuous
- Ages of people working in a large factory.
 - Number of cups of coffee served at a restaurant.
 - The amount of a drug injected into a dog.
 - The time it takes a statistics student to drive to Paga.
 - The number of gallons of Icy Cup milk sold each day at the Commercial Area spot, KNUST.
- B. Sally manages an investment fund and the table below shows the annual increase in the values for the last four years.

Year	Amount
2014	GH¢150,000
2015	GH¢190,000
2016	GH¢240,000
2017	GH¢300,000

From the information, compute the geometric mean percentage returns over time and briefly explain what it means.

- C. The following data shows the driving time of a group of lecturers who drive to school.

Driving Times (minutes)	Number of Lecturers
0 to less than 10	3
10 to less than 20	10
20 to less than 30	6
30 to less than 40	4
40 to less than 50	2
50 to less than 60	3

From the table

- compute the group mean and
- Compute the group variance and standard deviation and interpret what they mean

B. The annual amount spent on research and development for a sample of companies in Ghana are (in 1000s GH¢)

8 34 15 24 15 28 12 20 22 23 14 26 18 23 10
21 16 17 22 31 13 25 20 28 6 20 19 27 16 22

- i. Using six (6) classes organize the expenditures into a frequency distribution.
- ii. Portray the distribution in the form of a histogram

Question Three

A. Research conducted at the Department of Economics, Central University, revealed that the mean time spent by patients at the urine test laboratory is 19 minutes. The distribution of the time is approximated a normal distribution. The standard deviation of the distribution was 1.2 minutes.

- i. About 68% of the patients spent between what two values?
- ii. About 95% of the patients spent between what two values?
- iii. Virtually all the patients spent between what two values?

B. The monthly income of workers at Sioni Ltd are normally distributed with a mean of GH¢1,000 and standard deviation of GH¢100.

- i. What is the probability that a particular monthly income selected is between GH¢790 and GH¢1,000?
- ii. What is the probability that the income is less than GH¢790?
- iii. What percent of workers earn monthly incomes of GH¢1,245 or more?
- iv. What is the area under the normal curve between GH¢1,150 and GH¢1,250?

C. Each day food vendors in Central University generate an average of 28 grams of plastic for garbage. The standard deviation is 2 grams. Assume the variable is approximately normally distributed. If a vendor is selected at random, find the probability of him/her generating

- i. between 27 and 31 pounds per day,
- ii. more than 30.2 pounds per day.

- D. The following two data sets show the income of 20 teachers taken from two locations, A and B, (10 from each location).

Location A	Location B
GH¢1,200; GH¢1,190; GH¢1,230;	GH¢1,500; GH¢1,400; GH¢31,999;
GH¢1,560; GH¢1,990;	GH¢26,000; GH¢1,250; GH¢1,900;
GH¢1,890; GH¢2,400; GH¢1,180;	GH¢1,850; GH¢1,650; GH¢1,200;
GH¢1,230; GH¢1,300.	GH¢1,400.

A researcher is contemplating using either mean or median to describe the two data sets. Which data set will be inappropriate to use the arithmetic mean to describe? Explain your answer briefly.

- E. The following data were taken from the stock market of the economy of Nsiana.

Stock	Average Yield (GH¢)	Standard Deviation (GH¢)
A	500	70
B	700	65
C	550	40
D	800	110

From the data, compute the Coefficient of variation and advise an investor if the person wants to invest in a stock with the least variation in yield.

Question Two

- A. A small number of employees were selected from all the employees at Central University and their hourly rates recorded. The rates in GH¢ were: 9.50, 9.00, 11.70, 14.80, 13.05, 12.9, 10.0 and 13.00
- Are the hourly rates a sample or population? Explain
 - What is the level of measurement?
 - What is the arithmetic mean hourly rate?
 - What is the median hourly rate? Interpret
 - What is the variance?
 - What is the coefficient of skewness? Interpret

Question 4

- A. Central university has decided to select some students to go for an internship at a multinational company in Shanghai. Assume 10 students are to be selected for the internship with the probability that student selected is a female is 0.5 and that of male is 0.5.
- i. what is the probability that no female will be chosen?
 - ii. What is the probability that all those chosen are females?
 - iii. What is the probability that 3 males are chosen?

B. The following table shows the investment returns on three investment funds in an economy under three economic conditions

Economic Condition	Fund A	Fund B	Fund C
Recession	-1100	-500	-750
Expansion	+4200	+1500	+2100
stability	+1000	+700	+850

The probability that there will be expansion in the economy is 35% and there is 25% chance of economic recession and 40% chance of economic stability. From the information,

- i. compute the expected value for each fund
- ii. compute the variance of the return and the standard deviation.
- iii. If you are to recommend any of the investment for a potential investment, which one will you recommend? Explain your answer.