The Co-operative University of Kenya

END OF SEMESTER EXAMINATIONS

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

FINANCE AND BACHELOR OF COOPERATIVE BUSINESS

CODE: HCOB 2114 / CMFI 2107

UNIT TITLE: BUSINESS STATISTICS 1

DATE: APRIL 2019   **Time: 2 Hours**

INSTRUCTIONS

1. Answer question ONE and any other TWO (2) questions

3. Scienti c Calculators and non-programmable calculators may be used

4. Use the provided statistical tables where applicable

Question one

a. Discuss any three methods of data collection. Indicate the situations in which each of these methods should be used. (6marks)

b. Given the following data, calculate the Karl Pearson's coefficient of skewness: $\Sigma x = 452$ $\Sigma x^2 = 24270$, Mode = 43.7 and N = 10 (5marks)

c. The data below shows the age distribution of consumers who shopped at Real supermarket on a certain day.

Age	20	25	30	35	40	45
No. of costumers	10	13	21	10	7	9

Required: calculate

i.	The harmonic mean	(3 marks)
ii.	The geometric mean	(3 marks)
iii.	45th percentile	(3 marks)

d. Differentiate between inferential statistics and descriptive statistics (2 marks)

e. Define the following terms as used in probability theory (4marks)

   i.   Event

   ii. Sample space

   iii. Conditional probability

iv.   Mutually exclusive events

f.   Briefly explain the following sampling techniques   (4 marks)

i.   Stratified sampling
ii.   Random sampling

Question two

a.   Distinguish between measures of central tendency and measures of dispersion
(4 marks)
b.   Explain any four importance of statistics in business   (8 marks)
c.   Calculate the interquartile range and percentile range of the following frequency distribution.
(8 marks)

Age in years	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-46
frequency	7	10	16	32	24	18	10	5	1

Question three

a. List any four qualities of a good average   (4marks)
b. From the information given about each of the following set of data, work out the missing values in the table: (8 marks)

	n	$\sum x$	$\sum x^2$	$\overline{mean}$	Standard deviation
A	63	7623	924800	r	s
B	t	152.6	u	10.9	1.7
C	52	v	57300	33	w
D	18	y	z	57	4

c. Two machines A and B produced identical beads. Machine A has probability 0.1 of producing a defective bead each time, whereas machine B has probability 0.4 of producing a defective bead. Each machine produces one bead. One of these beads is selected at random, tested and found to be defective. What is the probability that it was produced by machine B?   (4marks)
d. Find the mean and mean absolute deviation for the data below
16, 7, 10, 19, 14, 12, 20, 14   (4marks)

Question four

a.   State three reasons why is it important to study a sample instead of the whole population
(3marks)
b.   Explain any three applications of probability in business   (3marks)
c.   An insurance company takes a keen interest in the age at which a person is insured. Consequently a survey conducted on prospective clients indicated that for clients having the same age the probability that they will be alive in 30 years' time is $^2/_3$. If a sample of 5

people was insured now, find the probability of having the following possible outcomes in 30 years

  i. All are alive   (3marks)

  ii. Atleast 3 are alive   (4marks)

  iii. At most one is alive   (4marks)

  iv. None is alive   (3marks)

Question five

  a) The following table gives the frequency distribution of monthly expenditure on food incurred by 100 household in Gataka Area

expenditure	frequency
101-150	5
151-200	8
201-250	14
251-300	20
301-350	15
351-400	29
401-450	9

Required

Calculate the following;

  i. Mean   (3 marks)

  ii. Mode   (3 marks)

  iii. Median   (3 marks)

  iv. Standard deviation   (5 marks)

  v. Skewness and it's coefficient   (6marks)