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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2020/2021 ACADEMIC YEAR
CERTIFICATE IN PROCUREMENT AND SUPPLIES MANAGEMENT
CPS 017-BUSINESS CALCULATIONS AND STATISTICS

Date: 17TH December, 2020.
Time: 8.30am – 10.30AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30MARKS)

- a) Explain each of the following.
- (i) Applied statistics (2 Marks)
 - (ii) Descriptive statistics (2 Marks)
- b) State 4 characteristics of a graph (4Marks)
- c) A piece of equipment will function only when all the three components A,B and C are working. The probability of failing during one year is 0.015, that of B failing is 0.05 and that of C failing is 0.10. What is the probability that the equipment will fail before the end of the year? (4Marks)
- d) Solve the following equations using substitution method
- $$3x+2y=3$$
- $$5x+3y=15$$
- (4 Marks)
- e) Define the term primary data and list three methods of primary data collection. (4 Marks)
- f) A bag contains 5 green balls and 7 red balls, 2 balls are drawn at random. What is the probability that one is green and the other is red? (4 Marks)
- g) Outline two advantages and two disadvantages of mean. (4 Marks)
- h) Calculate the range and the co-efficient of range from the following data (4 Marks)

Marks	10-20	20-30	30-40	40-50	50-60
No. of Student	8	10	12	8	4

QUESTION TWO (20 MARKS)

- a) Two computers A and B are to marketed. A salesman who is assigned the job of finding customers for them has 60% and 40% chances, respectively of succeeding in case of computer A and B. the computers can be sold independently. Given that he was able to sell at least one computer, what is the probability that computer A has been sold? (5Marks)
- b) Calculate the mean deviation from median and its co-efficient from the data below
- | Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|-----------|------|-------|-------|-------|-------|-------|-------|-------|
| frequency | 5 | 8 | 12 | 15 | 20 | 14 | 12 | 6 |
- (7 Marks)
- c) Discuss 4 properties of a good measure of dispersion. (2Marks)
- d) Compute Quartile Deviation and its co-efficient from the following data

X	10-20	20-30	30-40	40-50	50-60	60-70
F	12	19	5	10	9	6

(6 Marks)

QUESTION THREE (20MARKS)

(a) The number of telephone calls received daily in a marketing department of a company are given below;

No of calls	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	5	6	15	10	5	4	2	2

Calculate the;

- (i) Mean (3 Marks)
 - (ii) Median (4 Marks)
 - (iii) Mode (2 Marks)
 - (iv) Standard variation (5Marks)
 - (v) Co-efficient of variation (3Marks)
- c) List three advantages of Geometric Mean. (3Marks)

QUESTION FOUR (20MARKS)

- a) Solve the following equation $4x^2 - x - 3 = 0$ using
- i. Factorization method (2Marks)
 - ii. Quadratic formula (3Marks)
- b) Solve the following equations using Matrix method (5Marks)

$$5X + 9Y = -30$$

$$6X - 2Y = 28$$

Solve the following equations using Elimination method

$$4x + 3y = 7$$

$$3x - 2y = 9$$

(5Marks)

- c) Calculate the mode for the following data set (5Marks)

No.of children	2	3	4	5	6	7	8	9	10	11	12	13
No.of families	3	8	10	12	16	14	10	8	17	5	4	1

QUESTION FIVE (20 MARKS)

- a) A man bought 3 pens and 2 books at sh.70, the cost of 4 pens and one book is 60. Calculate the cost of one pen and one book. (3 Marks)
- b) Find the ratio a:b:c if

$$a:b=2:5$$

$$b:c=5:3$$

(2 Marks)

- c) The table below shows the masses of 200 people.

Mass (kg)	40-49	50-59	60-69	70-79	80-89	90-99
No. of people	9	27	32	18	24	10

Draw a cumulative frequency curve for the above data. (5 Marks)

Use the graph to estimate

- i. The median mass (2 Marks)
- ii. The number of people whose mass lies between 70.5 kg and 75.5 kg. (2 Marks)

- d) Calculate Mode, Q3, D3 from the following data
- | | |
|-------|---------------|
| MARKS | NO.OF STUDENT |
|-------|---------------|

0-10	2
10-20	7
20-30	11
30-40	6
40-50	4

(6 Marks)