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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2016/2017 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(BUSINESS ADMINISTRATION)

Date:
Time: 9.00am –

KBA 203 - STATISTICS FOR MANAGEMENT

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Define the following terms;

i) Sample

ii) Independent events

iii) Statistics

iv) Range

(2 Marks)

b) A couple plans to have four children. Determine the following probabilities given that success is getting a girl;

i) All are boys

(2 Marks)

ii) Three boys or less

(3 Marks)

iii) Third born is the second girl

(2 Marks)

c) A sample of 250 students was asked to indicate their hobbies. The responses were as follows; listening to music 52, swimming 28, watching 63, dancing 15 and online 92. Draw a pie-chart representing this information.

(4 Marks)

d) Suppose the arrival of patients at a clinic in a certain town is poison process with rate 2.8 per hour. Calculate the probability that in the next two hours the clinic receives no patient.

(5 Marks)

e) Consider the following data;

16	14	15	13	14	16	15	15	18	15
14	12	17	16	13	16	15	14	13	17

Construct the corresponding ungrouped cumulative frequency distribution table.

(4 Marks)

e) A general manager in XYZ ltd has 3 house girls who he pays Ksh.2000 per month each, two watchmen who receive KSh.2500 per month each and some gardeners who he pays Ksh.3500 each. If he pays out an average of Ksh.2850 per month to these people, find the number of gardeners

(4 Marks)

f) A variable x takes the following values with corresponding probabilities.

x	-3	-1	0	1	2	3
P(X=x)	0.1	0.2	0.1	0.2	0.15	0.25

Compute $E(x)$

(4 Marks)

QUESTION TWO (20 MARKS)

a) Calculate the mean absolute deviation of the following data;

Size of item	6	7	8	9	10	11	12
Frequency	2	6	9	13	8	5	4

(8 Marks)

b) The following data relates to the number of successful sales made by the salesmen employed by a large microcomputer firm in a particular quarter;

No. of sales	0-4	5-9	10-14	15-19	20-24	25-29
No. of salesmen	1	14	23	21	15	6

Calculate the mean number of sales.

(6 Marks)

c) Consider the following data; 29,30,60,13,30,7,2,7. Find;

i) Mode

(2 Marks)

ii) 3^{rd}decile

(4 Marks)

QUESTION THREE (20 MARKS)

a) A random variable X has the following probability distribution;

x	10	20	30	40
P(X=x)	a	2a	4a	3a

Find the value of a, hence $E(x)$

(7 Marks)

b) The table below gives the distribution of a random variable X.

x	0	1	2	3
P(x)	p	2q	P+q	q

Given that the mean of X is 1.375;

i) Find the values of p and q

(7 Marks)

ii) Find the variance of X

(6 Marks)

QUESTION FOUR (20 MARKS)

The following data represents the number of hours students in KWUST spent online in a certain week during the semester.

23.7	19.7	15.4	18.3	23.0	15.0	17.5	20.8	13.5	20.7
18.6	12.9	20.3	23.7	21.4	17.4	18.3	29.8	17.1	18.9
26.1	15.7	24.0	17.8	32.8	10.3	23.2	24.5	27.1	16.6
16.5	30.8	29.6	24.6	12.5	9.2	21.6	28.4	27.9	22.4

i) Organize the data into grouped frequency distribution starting with 9.2

(5 Marks)

ii) Plot a histogram for this data

(4 Marks)

iii) Plot the Ogive curve(on a separate graph)

(4 Marks)

iv) Using (iii) above, estimate ;

a) Median

(3 Marks)

b) 2^{rd} quartile

(2 Marks)

c) 70^{th} percentile

(2 Marks)

QUESTION FIVE (20 MARKS)

a) Suppose that a bag contains 5 fruits, 2 of them ripe and 3 unripe. Two fruits are randomly picked, one after the other with replacement if the fruit is unripe. Find the probability of having at least a ripe fruit.

(6 Marks)

b) Two fair dice labeled 1 to 6 are rolled. Let A be the event that the product of the two numbers showing up is greater than 21 and let B be the event that the product is divisible by 6. Find $P(A \cup B)$.

(8 Marks)

c) In a survey of 50 students in KWUST, it was found that 36 are in diploma, 20 have laptops and only 3 are neither diploma students nor have laptops. Find the probability that a randomly selected student has a laptop given that she is in diploma.

(6 Marks)