

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2016/2017**

**FIRST YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE CERTIFICATE IN BUSINESS ADMINISTRATION**

**HCB 0105: INTRODUCTION TO QUANTITATIVE METHODS**

**DATE: NOVEMBER, 2016 TIME: 2 HOURS**

**INSTRUCTIONS:** 1.QUESTION ONE IS COMPULSORY, **SECTION I**

 2. ATTEMPT ANY OTHER TWO QUESTIONS IN **SECTION II**

**SECTION ONE: 20 MARKS**

 a. Give qualities of a good average. [3 marks]

b. Find the mean of the following distribution. [5 marks]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 2 | 4 | 7 | 8 | 13 |
| F | 3 | 8 | 8 | 5 | 6 |

c. A hen lays eight eggs. Each egg was weighed and recorded as

 follows;

 60g, 56g, 61g, 68g, 51g, 53g, 69g, 54g

 Find the standard deviation. [5 marks]

d. Define index numbers and give types of index numbers. [3 marks]

c. Find the sum of the first 7 terms of the following series, 8, -6, 9/2 [4 marks]

**SECTION TWO: 40 MARKS**

 a. Define the following terms:- [3 marks]

 i. Set

 ii. Irrational numbers

 iii. Venn diagram

b. Given U= (1, 2, 3, 4, 5, 6, 7, 8, 9), illustrate on a venn diagram the

sets

i. A= (2,4,8) and B= (1,3,5,9) [4 marks]

c. A squash club has 27 members. 19 have black hair, 14 have brown eyes and 11 have both black hair and brown eyes.

 i. Place this information on a venn diagram. [3 marks]

 ii. Hence, find the number of members with

I. Black or Brown eyes. [3 marks]

II. Black hair but not brown eyes. [2 marks]

d. Given, A= (X/XEZ, 3$\leq $X $\leq $10) Write down:-

i. The meaning of the set builder notation. [2 marks]

ii. List the elements of set A. [2 marks]

iii. Find n (A)

**QUESTION THREE:**

 a. Define variation. [2 marks]

b. Give properties of standard deviation. [3 marks]

c. Calculate the mean and standard deviation of hours spent watching television by 220 students as shown in the table below:- [10 marks]

 Hours Number of Students

 10-14 2

15-19 12

20-24 23

25-29 60

30-34 77

35-39 38

40-44 8

d. The weight of 75 pigs were tabulated as shown on the table below:-

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Weight of Pigs | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | over 100 |
| Number of Pigs | 1 | 7 | 8 | 11 | 19  | 10 | 7 | 5 | 4 |  3 |

Calculate the median weight. [3 marks]

**QUESTION FOUR:**

 a. Define harmonic mean. [2 marks]

 b. Calculate the harmonic mean of the numbers:-

 13.2, 14.2, 14.8, 15.2 and 16.1 [6 marks]

 c. Given three types of Kurtosis and illustrate them diagrammatically.

 [6 marks]

 d. Describe the limitations of index numbers. [6 marks]