



(A Constituent college of Jomo Kenyatta University of Agriculture & Technology)

SCHOOL OF PURE AND APPLIED SCIENCE

END OF SEMESTER EXAMS SEMESTER 1 2015/2016

PROBABILITY & STATISTICS SMB 0104

CLASS: CERTIFICATE IN BRIDGING MATHEMATICS

DATE : 8<sup>TH</sup> DECEMBER 2015

TIME 2hrs

Instructions; Answer question ONE and any other TWO questions

1. (a) For the set of data below, make a frequency distribution table, find the mode median and mean.

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

[9mks]

- (b) Calculate the standard deviation of the following set of data.

5, 6, 8, 9, 11, 13, 14, 17, 18, 19,

[ 6mks].

- (c) A basket contains 5 red balls, 4 green balls and 3 blue balls. If a ball is picked at random from the basket find:

(i)The probability of picking a blue ball

(ii)The probability of not picking a red ball

(4mks)

- (d) Given a data of real time series data below. Calculate a 3-point moving average.

56, 59, 45, 25, 36, 58, 79

[5mks]

(e) A sample of 250 students were asked to indicate their favorite TV station and their responses were as follows: KBC; 52, CITIZEN; 28, KTN; 63, STV; 15 and NATION; 92 viewers. Draw a pie chart representing this information. 6mks

2. The following numbers give the weight of 55 students of a class.

42 74 40 60 82 115 41 61 75 83 63 53 110 76 84 50 67 65 78 77 56 95 68 69 104 80 79 79 54 73 59 81  
100 66 49 77 90 84 76 42 64 69 70 80 72 50 79 52 103 96 51 86 78 94 71

- (i) Construct a frequency distribution with class intervals starting from 40-49, 50- 59, 60-69, ... and state the modal class [4marks]
- (ii) Calculate the mean and the median. [9 marks]
- (iii) Draw the ogive and estimate, median, 1<sup>st</sup> and 3<sup>rd</sup> quartiles, and 20<sup>th</sup> and 60<sup>th</sup> percentiles. 7mks

3. (a) To the following data below; (i) draw a histogram  
(ii) calculate the median

class	frequency
6-10	5
11-20	8
21-30	10
31-45	15
46-50	4

[10mks]

(b) The probability that a day will be rainy is  $\frac{1}{4}$ . The probability that I carry an umbrella on a rainy day is  $\frac{1}{7}$  and that I carry an umbrella on a non-rainy day is  $\frac{2}{7}$ . Find the probability that;

(i) It will not be rainy and I carry an umbrella

(i) I shall carry an umbrella (5mks)

(c) Jane allocates his study time to three subjects as follows; mathematics 2 hours, English x hours and Economics x hours. After his exams the weighted mean of the three subjects was

found to be 57, if he scored 45, 70, and 62 marks in mathematics, English and economics respectively, find the value of  $x$ . (5mks)

4. (a) The weights in grams of some avocado fruits are given in the table below.

363.5 346.5 377.5 341.5 359.5 361.5 385.7 363.5 354.2 375.3  
 372.2 364.3 373.3 379.4 351.4 368.5 385.5 365.5 385.4 368.5

- (i) Starting with 340-349 group the data into classes of interval 10, state the modal class.
- (ii) From the obtained frequency table calculate from (i) above use assumed mean of 364.5 to calculate the mean and standard deviation. 14mks

(b) The table below shows some prices of some commodities in Kenya shillings at the end of year 2010 and 2011 respectively. Compute a simple price index for each commodity talking 2010 as the base year (2010=100).

commodity	Price 2010	Price 2011
Sugar(kg)	65	70
Loaf(500g)	20	25
T3 mobile phone	9000	8500

6mks

5. (a) Calculate the range, mean, inter-quartile range, quartile deviation, mean absolute deviation from the following data; 3, 6, 9, 3, 10, 7, 12, 1, 13, 15, 6, 5. [14mks]

(b) a number is selected at random from integers between 20 and 34 inclusive. Find the probability that;

(i) Its second digit is greater than the first

(ii) It is divisible by four

(iii) Its second digit is greater than the first and it is divisible by four [6mks]