



SOUTH EASTERN UNIVERSITY COLLEGE
(A Constituent College of the University of Nairobi)

UNIVERSITY EXAMINATIONS 2012/2013

**SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN FISHERIES AND BACHELOR OF SCIENCE IN
HYDROLOGY**

WFA 205: STATISTICS I

Date: 15th August 2012

Duration: 2 Hours

Instructions to Candidates

Answer ALL questions in SECTION A

Answer ANY THREE questions in SECTION B

SECTION ONE (Compulsory)

QUESTION ONE (40 MARKS)

- a) State the difference between primary and secondary data. (2mks)
- b) State any two functions of statistics. (2mks)
- c) Give the differences between Histogram and a bar graph. (3mks)
- d) Compute the mean deviation for the following frequency distribution table. (5mks)

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	2	4	4	8	6	3	2

- e) The table below shows a frequency distribution of marks obtained by 100 students in a certain University.

Marks obtained	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
No. of students	12	14	10	15	20	10	11	8

Calculate the:

- i. Lower limit of the last class. (1mk)
- ii. Upper limit of the third class. (1mk)
- iii. Class mark of the sixth class. (1mk)
- iv. Class limits of the first class. (1mk)
- v. Relative frequency of the seventh class. (1mk)
- vi. Percentage of students whose marks exceed 40. (2mk)
- vii. Percentage of students whose marks are at least 21 and less than 61. (2mks)
- viii. Construct a cumulative frequency curve and use it to estimate; (4mks)
 - I. The semi inter quartile range (2mks)
 - II. 6th decile (2mks)
 - III. 45th percentile (2mks)
- f) For a group of 100 students, the mean and standard deviation were found to be 45 and 12 respectively. Later, it was discovered that the scores 42 and 64 were misread as 24 and 46 respectively. Find the correct mean and hence the standard deviation. (9mks)

SECTION TWO (Attempt any three questions)

QUESTION TWO (20 MARKS)

a) An analysis of salaries paid to workers of 2 firms A and B belonging to the same industry gives the following results.

	Firm A	Firm B
No. of workers	500	600
Average monthly salary in £	£186	£175
Variance of distribution in salaries	81	100

i. Which firm has a large wage bill? (3mks)

ii. Calculate;

I. The average monthly wage and (3mks)

II. The variance and hence the standard deviation of the distribution of wages in firms A and B taken together. (4mks)

b) Compute the median, mean, the variance and the standard deviation of the of the following set of numbers;

6 10 15 25 30 32 40 46 (10mks)

QUESTION THREE (20MARKS)

a) Define the following statistical terms

i. Statistics (2mks)

ii. Inferential statistics (2mks)

iii. Sample (1mk)

b) The data of 100 observations are presented in the following frequency distribution table.

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	12	15	18	25	20	10

i. Draw an ogive (cumulative frequency curve) of this distribution. (4mks)

ii. Calculate; (*Do not estimate*)

I. The mode (4mks)

II. The median (4mks)

c) Find the geometric mean of the set below.

3 6 9 12 15 (3mks)

QUESTION FOUR (20MARKS)

a. What is the probability that a family of 3 children contains; (Assuming that boys and girls are equally likely)

- i. No girl (2mks)
 - ii. Two girls (2mks)
 - iii. At least a girl (2mks)
 - iv. At most one boy (2mks)
- b) For two events, A and B, $P(A)=0.4$ and $P(B)=0.2$. if A and B are independent, find;
- i. $P(A \cup B)$ (2mks)
 - ii. $P(A \cap B)$ (2mks)
 - iii. $P(A/B)$ (2mks)
- c) A bag contains 5 white balls, 7 black balls and 8 red balls. Two balls are drawn without replacement. Find the probability that:
- i. The first ball is white and the second is red. (2mks)
 - ii. Both the balls are of different colors. (2mks)
 - iii. Both the balls are of the same color. (2mks)

QUESTION FIVE (20MARKS)

- a) What is the advantage of descriptive statistics over inferential statistics? (2mks)
- b) Distinguish between the following terms.
- i. Discrete variable and continuous variable (2mks)
 - ii. Qualitative variable and quantitative variable (2mks)
- c) After analysis of WFA 205 exam results, the coefficient of skewness was found to be 0.5. What conclusion can you make about the performance in the test? (4mks)
- d) Find the missing information from the following table.(show your working) (10mks)

	Group 1	Group	Group	Combined statistics
No. of observations	50		90	250
Mean	113		115	116
Standard deviation	6	7		7.745

QUESTION SIX (20MARKS)

- a) Consider the following marks by 20 students in a statistics test.

64 89 63 61 78 87 74 72 54 88
 62 81 78 73 63 56 83 86 83 93

Construct a stem-and leaf diagram for these marks in a statistics class performance. (3mks)

- b) The mean and standard deviation of the heights of 400 women are found to be 65.4 inches and 2.31 inches respectively. The respective mean and standard deviation of the heights of 600 men are found to be 66.6 inches and 2.34 inches. Calculate the mean and standard deviation of heights for the combined distribution of men and women. (8mks)
- c) In a factory that manufactures bolts, machines A, B and C produces 25%, 35% and 40% of the total production respectively. 5%, 4% and 2% of the bolts produced by machines A, B and C respectively are defective. A bolt is selected at random from the produce and is found to be defective. What is the probability that it was manufactured by;
- i. Machine A (3mks)
 - ii. Machine B (3mks)
 - iii. Machine c (3mks)