



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTION BASED PROGRAMME

DECEMBER SESSION EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE

HSS 500: STATISTICS IN RECREATION AND MOVEMENT SCIENCE

DATE: Friday 4th May, 2012

TIME: 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS

Answer Questions 1, 2 and 3 (Compulsory) and EITHER question 4 or 5.

1. The following dataset provides data from a certain population: Study and answer the questions below:

Age	Gender	Waist Circ	Wt	Height	Systolic BP	Diastolic BP
41	F	98	69	167.5	99	70
30	F	88	64	165.5	134	90
52	M	94	69	165	111	63
57	F	94.5	66	169	125	84
48	M	109	90	176	126	90
60	F	100	60	158	135	88
61	M	126.5	115	166.6	116	95
62	M	108.5	84	175	121	85
28	M	76.5	64	154	107	60
36	F	86	51	165.5	134	80
35	F	96.5	69	173	116	69
46	F	95.5	90	168	125	73
70	M	98.5	70	176	130	74
40	F	81	55	157	141	105
31	M	91.5	72	155.5	110	80
33	M	106	85	160.5	111	67
65	M	104.5	77	167	129	76
75	M	112.5	95	163.5	125	93
57	M	100.5	80	156	115	69
59	F	122	85	164.5	118	73
50	F	115	96	142.5	145	117
30	M	103	83	169	104	76
78	M	95.5	80	154	111	79

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|------|-----------|--|---|-----------|
| i) | Calculate | a) | ΣX for males waist circumference | [1 mark] |
| | | b) | ΣX^2 for females waist circumference | [1 mark] |
| | | c) | $(\Sigma X)^2$ for males waist circumference | [2 marks] |
| | | d) | $\Sigma (X - 1)$ for females waist circumference | [2 marks] |
| | | e) | $\Sigma X - 1$ for males waist circumference | [2 marks] |
| | | f) | $\Sigma (X - 1)^2$ for females waist circumference | [2 marks] |
| | | g) | Variance for female waist circumference | [2 marks] |
| | | | | |
| ii) | Calculate | a) | ΣX for males Height Aged > 50 yrs | [1 mark] |
| | | b) | ΣX^2 for males Height Aged > 50 yrs | [1 mark] |
| | | c) | $(\Sigma X)^2$ for males Height Aged > 50 yrs | [2 marks] |
| | | d) | $\Sigma (X - 1)$ for males Height Aged > 50 yrs | [2 marks] |
| | | e) | $\Sigma X - 1$ for males Height Aged > 50 yrs | [2 marks] |
| | | f) | $\Sigma (X - 1)^2$ for males Height Aged > 50 yrs | [2 marks] |
| | | g) | Variance for male Heights aged > 50 yrs | [2 marks] |
| | | | | |
| iii) | Calculate | a) | ΣX for systolic BP females < 50 yrs | [1 mark] |
| | | b) | ΣX^2 for systolic BP females < 50 yrs | [1 mark] |
| | | c) | $(\Sigma X)^2$ for systolic BP females < 50 yrs | [2 marks] |
| | | d) | $\Sigma (X - 1)$ for systolic BP females < 50 yrs | [2 marks] |
| | | e) | $\Sigma X - 1$ for systolic BP females < 50 yrs | [2 marks] |
| | | f) | $\Sigma (X - 1)^2$ for systolic BP females < 50 yrs | [2 marks] |
| | | g) | Standard Deviation for Diastolic Pressure | [2 marks] |
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| 2. | a) | Describe the empirical rule and the chebyshev's theorem as used in dispersion percentages. | | [4 marks] |
| | b) | Define the following terms as used in statistics | | |
| | i) | Range | | [2 marks] |
| | ii) | Variance | | [2 marks] |
| | iii) | Standard Deviation | | [2 marks] |
| | iv) | Relative variability | | [2 marks] |
| | v) | Z-Score | | [2 marks] |

3. With specific examples, define the following levels of measurements
- a) Nominal [2 marks]
 - b) Ordinal [2 marks]
 - c) Interval [2 marks]
 - d) Ratio [2 marks]
 - c) Continuous data [2 marks]
4. Using the dataset provided in question 1 on the weight,
- a) Construct a stem and leave plot for the age of individuals in the study. [5 marks]
 - b) Compare the two tables and describe who weighs higher between the men and women. [5 marks]
5. In a contest sponsored by softa sodas, you win a prize if the cap on your bottle of sodas says “WINNER”; however, you may only claim one prize. Eager to win, you blow all your savings on sodas; as a result, you have a 0.05% chance of winning Ksh.1,000,000, a 1% chance of winning Ksh 20,000, and a 90% chance of winning Ksh.10. Ignoring the money you spent on sodas, what is your expected value and standard deviation? [10 marks]

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