



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN SPORTS SCIENCE

SSS 302: STATISTICAL ANALYSIS IN HUMAN PERFORMANCE

DATE: Thursday 27th March, 2012

TIME: 2.00 p.m. – 4.00 p.m.

INSTRUCTIONS: Answer Q1, 2 and 3 (COMPULSORY) and choose either 4 or 5.

Q1. The following dataset provides data from a certain study population: study and answer the questions below:

Age	Gender	Waist Circle	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	14	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

Using the dataset provided calculate:

i) a) $\sum X$ for females waist circumference

[1 mark]

- b) $\sum X^2$ for females waist circumference [1 mark]
- c) $(\sum X)^2$ for females waist circumference [1 mark]
- d) $\sum (X - 1)$ for females waist circumference [1 mark]
- e) $\sum X - 1$ for females waist circumference [1 mark]
- f) $\sum (X - 1)^2$ for females waist circumference [2 marks]
- g) Variance for female waist circumference [2 marks]
- ii) Calculate a) $\sum X$ for males Height Aged > 50 yrs [1 mark]
- b) $\sum X^2$ for males Height Aged > 50 yrs [1 mark]
- c) $(\sum X)^2$ for males Height Aged > 50 yrs [2 marks]
- d) $\sum (X - 1)$ for males Height Aged > 50 yrs [2 marks]
- e) $\sum X - 1$ for males Height Aged > 50 yrs [2 marks]
- f) $\sum (X - 1)^2$ for males Height Aged > 50 yrs [2 marks]
- iii) Calculate a) $\sum X$ for systolic BP females < 50 yrs [1 mark]
- b) $\sum X^2$ for systolic BP females < 50 yrs [1 mark]
- c) $(\sum X)^2$ for systolic BP females < 50 yrs [2 marks]
- d) $\sum (X - 1)$ for systolic BP females < 50 yrs [2 marks]
- e) $\sum X - 1$ for systolic BP females < 50 yrs [2 marks]
- f) $\sum (X - 1)^2$ for systolic BP females < 50 yrs [2 marks]
- g) Standard Deviation for Diastolic Pressure [2 marks]
- h) Calculate the value that corresponds to 2.45 Z-scores of the mean diastolic pressure. [2 marks]
2. a) State the common non-probability sampling techniques used in social sciences. [5 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:
- a) Nominal [2 marks]
 - b) Ordinal [2 marks]
 - c) Interval [2 marks]
 - d) Ratio [2 marks]
 - e) Type II errors [2 marks]
4. Using the dataset provided in Question 1 on the weights:
- a) Construct a BOX-PLOT presentation of the weights of the participants of the study. [5 marks]
 - b) Compare the two means and describe who weighs higher between the men and women. [5 marks]
- 5.
- a) Describe Linear regression in statistics. [2 marks]
 - b) The citizens of Canada work a mean of 251 days per year, with a standard deviation of 20 days. Calculate the number of days corresponding to a z-score of 2.3? [3 marks]
 - c) Construct a stem and leave plot for the age of individuals in the study using the dataset provided. [5 marks]