Summative Assessment: Statistics

Question 1

i. Variable types
   - Nominal data
   - Interval data

ii. Examples
   - Nominal data : Gender
   - Interval data: Date of interview

Question 2

i. An observational study design.

ii. Data can be collected by selecting previously existing data like in this case it was data collected for the past 12 months farming season.

iii. Multi-stage stratified random sampling method. The first stage countries were selected to represent the four sub-regions of Africa East, West, North and Southern Africa. The second stage districts were selected to within each country. Stage three sampling involved selection of villages within districts included in the survey.

iv. Appropriate for the cost set for the survey and speed that the survey can be done, because of the convenience of finding the survey sample and is more accurate than cluster sampling for the same size sample.

v. Sources of bias, the lack of multiple visit surveys to reduce memory and recall biases since they were not feasible considering cost implications of such wide geographic spread of the sample.

Question 3

- Question 1: The impact of climate change on live stock farming in Africa
- Question 2: The economical impact of climate change in Africa

Question 4

i. The impact of climate change on live stock farming in Africa, we will look at climate change causing a significant effect to live stock farming

ii. Null and Alternative hypothesis
   - Null hypothesis: There is no significant effect
   - Alternative hypothesis: There is a significant negative effect

iii. Linear regression will be used to determine if there is a statistically significant relationship between climate change and live stock.

iv. Appropriate as the observations do not have a large influence on predictions, there is be no influential outliers.

v. Results will be significant if they show that water sources correlates with live stock numbers.

Question 5

i. Interpreting results
   - Significant if live stock decreases as water sources decreases.
   - Non-significant if live stock increases even when water sources are decreasing, therefore the Null hypothesis is accepted.

ii. Climate change negatively affects live stock farming.

Question 6

i. Visualizations for Nominal data
   - Pie chart

ii. Visualizations for Interval data
   - Bar chart
   - Line chart

Question 7

i. The data is important to the research, since it forms part of the factors that play part in agricultural systems.

ii. Any change on the factors can show significant change of the climate and whether the agricultural system can withstand any climate change or extreme weather events. For example if there is drought, there will be less irrigated areas.

Question 8

- The bar graph is suitable for showing parts of a whole, and does not have a limitation of variables.

Question 9

i. Average household size is 10.69 rounded off to 11

ii. The mean total in-kind payments is 638.984 rounded off to 639

iii. The median sale price is 3500

Question 10

- The mode of transport is truck or other motorized vehicle.