

SAMPLE PAPER 2014: PAPER 2

QUESTION 2 (25 MARKS)

Question 2 (a)

STRATIFIED SAMPLING: A probability sampling technique where the entire population is divided into non-overlapping subgroups (strata) and the final subjects are randomly selected proportionally from the different strata.

An advantage of this method over simple random sampling is greater precision using samples of the same size.

CLUSTER SAMPLING: A probability sampling technique in which the sampler takes several steps in choosing the sample population. Firstly, the population is divided into clusters. A simple random sample of clusters is then selected from all of these clusters.

Finally, individuals are selected randomly from each cluster. An advantage over a simple random sample is that it is much cheaper.

Question 2 (b) (i)

$$\text{Margin of error} = \frac{1}{\sqrt{n}} = \frac{1}{\sqrt{1111}} = 0.03$$

Question 2 (b) (ii)

Null hypothesis $H_0: P = 0.23$

Alternative hypothesis $H_1: P \neq 0.23$

$$\text{Sample proportion } P = \frac{234}{1111} = 0.2106$$

$$\text{Confidence interval} = [0.2106 - 0.03, 0.2106 + 0.03] = [0.1806, 0.2406]$$

There is evidence to support the party's claim that it has the support of 23% of the electorate because, based on the sample data, any values in the range 18% – 24% are possible values for the proportion of the electorate who support the party.

23% is in this confidence interval. Therefore, you cannot reject the null hypothesis.
