Systematic, quota and cluster sampling

Grade 5 | Foundation and Higher | 5 questions, 20 marks

GCSE Statistics topic practice

Name: _____ **Date:** _____ **Score:** _____ **/ 20**

1 Three people each take a sample. The table describes what they do.

Person	What they do
Amir	He has a list of 800 customers. He picks one of the first 20 customers at random, then every 20th customer after that.
Beth	She picks 4 streets in a town at random and asks every household in those 4 streets.
Chen	He stands outside a cinema and asks people until he has asked 30 adults and 30 children.

Write down the name of the sampling method each person uses. (3)

(3 marks)

2 A sports club has 900 members. They are listed in a numbered list from 1 to 900. The club secretary takes a systematic sample of 45 members.

a. Work out the sampling interval. (1)

b. The first member chosen is number 13. Write down the numbers of the next three members chosen. (1)

c. Is member number 453 in the sample? You must show how you get your answer. (1)

d. Give one advantage of systematic sampling. (1)

(4 marks)

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3 A factory makes 2400 phone cases each day. The quality manager wants to check a sample of 60 of the cases made in one day.

a. Describe how the manager could take a systematic sample of 60 phone cases. (2)

b. A researcher wants to know what people think of the phone cases. She stands in a town centre and interviews the first 20 men and the first 20 women who agree to talk to her. Write down the name of this sampling method. (1)

c. Give one disadvantage of the sampling method in part (b). (1)

(4 marks)

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4 A council wants to find out what households in a city think about its recycling service. The city is divided into 150 neighbourhoods of about the same size. The council decides to take a cluster sample.

a. Describe how the council could take a cluster sample. (2)

b. Give one advantage of using a cluster sample here. (1)

c. Give one disadvantage of using a cluster sample here. (1)

(4 marks)

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5 A school has 600 pupils in Years 7 to 9 and 400 pupils in Years 10 and 11. Sana wants to ask a quota sample of 50 pupils about school lunches. She wants the two age groups in her sample to be in the same proportions as in the school.

a. Work out the quota for each age group. (2)

b. Sana stands in the canteen at lunchtime and asks pupils until both quotas are full. Explain why her sample may be biased. (1)

c. Describe one way that a stratified sample would be different from Sana's quota sample. (1)

d. Give one reason why Sana might choose quota sampling instead of stratified sampling. (1)

(5 marks)

End of questions | Total 20 marks

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