

Data Collection – GCSE Statistics

1. No.1

What type of data is the number of adverts you see when watching a film?

Circle your answer.

[1 mark]

continuous

grouped

categorical

discrete

2. No.3

Which of these is a **small part** of the population, used to avoid having to ask everyone?

Circle your answer.

[1 mark]

census

questionnaire

sample

representative

3. No.10

Here are some variables.

Some are relevant to people and their main job and some are not.

A – How much you are paid in a year

B – Your favourite TV series

C – How many days of holiday you are allowed each year

D – How tall you are

E – Distance from your home to work

F – How much you like your work colleagues

G – How happy you are at work

Adam is investigating whether people who are paid more are happier at work.

- (a) Write down a possible research question for Adam's investigation.

[1 mark]

- (b) Write down the letter of the explanatory variable.

[1 mark]

Answer _____

- (c) Write down the letter of the response variable.

[1 mark]

Answer _____

- (d) Write down the letters of **two** possible extraneous variables.

[2 marks]

Answer _____ and _____

4. No.15

A deadly disease currently has no treatment.

A researcher develops a drug which she believes will treat the disease.

She suggests a statistical experiment to test her drug.

Infect six people chosen at random with the disease.

Give the drug to all six people.

Record whether each person recovers or not.

(a) Write down **two** problems with the researcher's experiment.

[2 marks]

Problem 1 _____

Problem 2 _____

(b) The researcher carries out a more suitable experiment.

She writes an article for a magazine to highlight her results.

She gives the name of each patient in the experiment and records how they responded to the drug.

The magazine editor asks the researcher to rewrite her article.

Explain why.

[1 mark]

5. No.5

Marcus is planning a Driver Safety course.

He wants to give the people attending the course a questionnaire to complete.

- (a) Marcus wants to know how far each person usually drives in a week.

Write a closed question that Marcus could ask to find out this information.

Include a response section.

[3 marks]

- (b) Marcus also wants to know whether people regularly drive faster than the speed limit.

He plans to collect the information using this method.

He asks each person to secretly throw a dice.

The person then answers as follows:

- if the person gets an odd number, they answer 'Yes'
- if the person gets an even number, they truthfully answer the question, 'Do you regularly drive faster than the speed limit?'

- (b) (i) Why does Marcus use this method?

[1 mark]

- (b) (ii) Marcus collects data from 100 people using this method.
60 people give the answer 'Yes'.

Marcus says,

"60% of these people regularly drive faster than the speed limit."

Explain why Marcus is wrong.

[1 mark]

6. No.7

Research into the effect of gaming on concentration levels in young people shows mixed results.

Jem decides to get opinions about this amongst her friends and teachers.

- (a) Jem decides to use convenience sampling to obtain people to ask.

What is convenience sampling?

[1 mark]

- (b) Give **one** advantage of using convenience sampling.

[1 mark]

- (c) Give **one** disadvantage of using convenience sampling.

[1 mark]

- (d) One of Jem's questions was,

"Do you agree that gaming has more positive benefits than negative?"		
Tick (✓) a box	Yes ☐	No ☐

Suggest **two** improvements to this question.

[2 marks]

1

2

7. No.1

Vanessa measures the height and mass of 12 children.

Circle the name given to the type of data she has collected.

[1 mark]

bivariate

qualitative

discrete

categorical

8. No.5

A town council is considering reducing the opening hours of the local library.

Grace and Alex want to find out how people living in the town feel about this.

- (a) Grace decides to ask people as they leave a supermarket in the town at different times one week.

She collects data from,

30 males and 30 females aged 40 years and under

30 males and 30 females aged 41 years and over.

- (a) (i) What is the name given to this type of sampling?

[1 mark]

Answer _____

- (a) (ii) Give two different reasons why her sample may be unreliable.

[2 marks]

Reason 1 _____

Reason 2 _____

The town has 8000 houses.

Alex decides to obtain a sample of 120 of these houses using random sampling.

- (b) Explain how Alex can use a list of random numbers to select his sample.

[3 marks]

- (c) Alex plans to interview one person face-to-face from each house he samples.

- (c) (i) Write down **one** problem that he could have when he tries to carry out the interviews.

[1 mark]

- (c) (ii) Write down **one** way that he could overcome the problem you wrote down in part (c)(i).

[1 mark]
