

**Q1.** Poppy wants to find out for how much time people use their computer.

She uses this question on a questionnaire.

For how much time do you use your computer?

|           |                          |           |                          |
|-----------|--------------------------|-----------|--------------------------|
| 0–1 hours | <input type="checkbox"/> | 3–4 hours | <input type="checkbox"/> |
| 1–2 hours | <input type="checkbox"/> | 4–5 hours | <input type="checkbox"/> |
| 2–3 hours | <input type="checkbox"/> | 5–6 hours | <input type="checkbox"/> |

(a) Write down **two** things that are wrong with this question.

1 .....

.....

2 .....

.....

(2)

Poppy gives her questionnaire to all the students in her class.

Her sample is biased.

(b) Give **one** reason why.

.....

.....

(1)

(Total 3 marks)

**Q2.** Poppy wants to find out for how much time people use their computer.

She uses this question on a questionnaire.

For how much time do you use your computer?

|           |                          |           |                          |
|-----------|--------------------------|-----------|--------------------------|
| 0–1 hours | <input type="checkbox"/> | 3–4 hours | <input type="checkbox"/> |
| 1–2 hours | <input type="checkbox"/> | 4–5 hours | <input type="checkbox"/> |
| 2–3 hours | <input type="checkbox"/> | 5–6 hours | <input type="checkbox"/> |

Write down **two** things that are wrong with this question.

1 .....

.....

2 .....

.....

(Total 2 marks)

**Q3.** James wants to find out how many text messages people send.

He uses this question on a questionnaire.

|                                       |                          |                          |                          |
|---------------------------------------|--------------------------|--------------------------|--------------------------|
| "How many text messages do you send?" |                          |                          |                          |
| <input type="checkbox"/>              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1 to 10                               | 11 to 20                 | 21 to 30                 | more than 30             |

(a) Write down **two** things wrong with this question.

1 .....

2 .....

(2)

James asks 10 students in his class to complete his questionnaire.

- (b) Give **one** reason why this may not be a suitable sample.

.....  
.....

(1)  
(Total 3 marks)

- Q4.** (a) Dan is doing a survey to find out how much time students spend playing sport. He is going to ask the first 10 boys on the register for his PE class.

This may **not** produce a good sample for Dan's survey.

Give **two** reasons why.

Reason 1

.....  
.....  
.....

Reason 2

.....  
.....  
.....

(2)

- (b) Design a suitable question for Dan to use on a questionnaire to find out how much time students spend playing sport.

(2)  
(Total 4 marks)

**Q5.** Charles wants to find out how much people spend on sweets.

He will use a questionnaire.

(a) Design a suitable question for Charles to use in his questionnaire.

(2)

Charles asks the people in his class to do his questionnaire.

(b) Give a reason why this may not be a suitable sample.

.....  
.....

(1)  
(Total 3 marks)

**Q6.** Naomi wants to find out how often adults go to the cinema.

She uses this question on a questionnaire.

“How many times do you go to the cinema?”

Not very often

Sometimes

A lot

(a) Write down **two** things wrong with this question.

1 .....

.....

2 .....

.....

(2)

(b) Design a better question for her questionnaire to find out how often adults go to the cinema.

You should include some response boxes.

(2)

(Total 4 marks)

**Q7.** Fred is going to take a survey of the magazines read by students.

He wants to design a questionnaire.

(a) Design a suitable question that he could use to find out what types of magazine students read.

(2)

Fred put the question below on his questionnaire.

'How many magazines have you read?'

A few

A lot

- (b) Design a better question.  
You should include some response boxes.

(2)  
(Total 4 marks)

M1.

|                                    | Answer                                                        | Mark | Additional Guidance                                             |
|------------------------------------|---------------------------------------------------------------|------|-----------------------------------------------------------------|
| (a)                                | Overlapping intervals<br>Time frame<br>No 6+ (or none)        | 2    | <b>B2</b> for 2 correct 731607245<br>( <b>B1</b> for 1 correct) |
| (b)                                | Not representative of all ages<br>Students use computers more | 1    | <b>B1</b> for one acceptable reason                             |
| <b>Total for Question: 3 marks</b> |                                                               |      |                                                                 |

M2.

|                                    | Answer                                                        | Mark | Additional Guidance                                       |
|------------------------------------|---------------------------------------------------------------|------|-----------------------------------------------------------|
|                                    | Overlapping intervals<br>No time period<br>No 6+ response box | 2    | <b>B2</b> for two correct<br>( <b>B1</b> for one correct) |
| <b>Total for Question: 2 marks</b> |                                                               |      |                                                           |

M3.

|  | Answer | Mark | Additional Guidance |
|--|--------|------|---------------------|
|--|--------|------|---------------------|

|                                    |                                                                         |   |                                                                     |
|------------------------------------|-------------------------------------------------------------------------|---|---------------------------------------------------------------------|
| (a)                                | No time period<br>No response box for 0<br>Need smaller class intervals | 2 | <b>B2</b> for 2 of the 3 reasons<br><b>(B1</b> for 1 reason)        |
| (b)                                | Comment on sample                                                       | 1 | <b>B1</b> for sample too small or all same age group or same gender |
| <b>Total for Question: 3 marks</b> |                                                                         |   |                                                                     |

**M4.**

|                                    | Answer                      | Mark | Additional Guidance                                                                                                                                                                                                                                    |
|------------------------------------|-----------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a)                                | Reason                      | 2    | <b>B2</b> for 2 acceptable reasons relating to the types below<br><b>[B1</b> for 1 acceptable reason]<br>Bias relating to age.<br>Bias relating to gender<br>Bias relating to PE students<br>Size of sample too small<br>Sampling method is not random |
| (b)                                | Question and response boxes | 2    | <b>B2</b> for a suitable question with at least 3 non-overlapping response boxes (must include a time period and units)<br><b>[B1</b> for a suitable question with time period or at least 3 non-overlapping response boxes with units]                |
| <b>Total for Question: 4 marks</b> |                             |      |                                                                                                                                                                                                                                                        |

**M5.**



|                                    | Working | Answer                    | Mark | Additional Guidance                                                                                                                                                                                          |
|------------------------------------|---------|---------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a)                                |         | Question + response boxes | 2    | <b>B2</b> for a suitable question with at least 3 non-overlapping response boxes (must include a time period)<br><br>( <b>B1</b> for a suitable question with time period or non-overlapping response boxes) |
| (b)                                |         | Reason                    | 1    | <b>B1</b> for biased or all the students the same age or students (may) eat more sweets, etc                                                                                                                 |
| <b>Total for Question: 3 marks</b> |         |                           |      |                                                                                                                                                                                                              |

**M6.**

|                                    | Working                                             | Answer                                                              | Mark | Additional Guidance                                                                                                                                                                                                                     |     |     |     |
|------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| (a)                                |                                                     | No time period<br>Non-exhaustive response boxes<br>Labels too vague | 2    | <b>B2</b> for TWO aspects from: “no time period”, “response boxes not exhaustive (restricted range of responses)”, “Labels on response boxes are too vague”<br>( <b>B1</b> for ONE aspect only)                                         |     |     |     |
| (b)                                | How many times did you go to the cinema last month? | Includes time period and proper response boxes                      | 2    | <b>B1</b> for inclusion of time period (this may be implied by the labels to the response boxes)<br><br><b>B1</b> for at least 3 correctly labelled response boxes (non-overlapping)<br><br>[NB: response boxes need not be exhaustive] |     |     |     |
|                                    | 0                                                   |                                                                     |      |                                                                                                                                                                                                                                         | 1-2 | 3-5 | > 5 |
|                                    |                                                     |                                                                     |      |                                                                                                                                                                                                                                         |     |     |     |
| <b>Total for Question: 4 marks</b> |                                                     |                                                                     |      |                                                                                                                                                                                                                                         |     |     |     |

M7.

|     | Answer                                                                                                                                                                     | Mark | Additional Guidance                                                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) |                                                                                                                                                                            | 2    | <b>B1</b> 'What type of magazine do you read?'<br><b>B1</b> for at least 2 magazines identified in response boxes<br>[Note: <b>B0</b> for any data collection sheet/chart] |
| (b) | How many magazines have you read in the last week<br><br>0 <input type="checkbox"/> 1 <input type="checkbox"/><br>2-3 <input type="checkbox"/> >3 <input type="checkbox"/> | 2    | <b>B1</b> Relevant question that refers to a time period.<br><b>B1</b> for at least 3 mutually exclusive response boxes (need not be exhaustive)                           |
|     |                                                                                                                                                                            |      | <b>Total for Question: 4 marks</b>                                                                                                                                         |

**E1.** In part (a), most candidates were able to score at least one mark in this question, usually for identifying the overlapping intervals. Another popular response was to identify in some way that there was not a box for more than 6 hours, e.g. “no other box”, or a box for no computer, e.g. “they may not have a computer”. A small number of candidates thought, incorrectly, that there was a problem with the grammar of the question, or with the presentation of the boxes.

In part (b), about a third of the candidates were able to identify why her sample was biased. Many simply repeated one of the reasons they gave in part (a), typically ‘they may not have a computer’, or where too, e.g. ‘she only asked the people in her class.’

**E2.** Most candidates were able to score at least one mark in this question, usually for identifying the overlapping intervals. Another popular response was to identify in some way that there was not a box for more than 6 hours, e.g. “no other box”, or a box for no computer, e.g. “they may not have a computer”. A small number of candidates thought, incorrectly, that there was a problem with the grammar of the question, or with the presentation of the boxes.

**E3. Foundation**

Around 80% of the candidates were able to score at least one mark on this question. Around 12% of the candidates were able to provide two valid things wrong with the question and give a suitable reason why the sample was not suitable whilst around 30% scored a total of 2 marks. The two most commonly identified things wrong with this question were the lack of a time period and not having a box for zero clearly stated. These were described in various ways but nevertheless reward was given for recognition of these two facts. Many spotted that the number 30 was involved in two option boxes and therefore gave the criticism that there were overlapping regions, clearly not understanding the implication of the words ‘more than 30’. Credit was also given to those candidates who identified that the range within each box was too wide.

Part (b) was asking about a ‘suitable sample’ but most responses were still focusing on ‘two things wrong with this question’ from part (a). Thus it became simply a repeat of the answer for the first part slightly re-worded. Concentrating on sample size, age group or gender should have provided an easier base to frame the answer about the sample. Many

candidates thought that James' sample could not include people that he knew.

### Higher

Virtually all the candidates were able to score at least one mark on this question. Around half the candidates were able to provide two valid things wrong with the question and give a suitable reason why the sample was not suitable whilst around 80% scored a total of 2 marks. The two things wrong with this question were often correctly identified with the lack of a time period and not having a box for zero clearly stated. These were described in various ways but nevertheless reward was given for recognition of these two facts. Many spotted that the number 30 was involved in two option boxes and therefore gave the criticism that there were overlapping regions, clearly not understanding the implication of the words 'more than 30'. The word 'specific', with all its spelling variations, also featured but did not identify precisely what it referred to. Credit was also given to those candidates who identified that the range within each box was too wide. Candidates appeared to have been taught to respond with 'biased', 'leading' or 'too personal' which was not appropriate in this case.

Part (b) was asking about a 'suitable sample' but many responses were still focussing on 'two things wrong with this question' from part (a) thus it became simply a repeat of the answer for the first part slightly re-worded. Concentrating on sample size, age group or gender should have provided an easier base to frame the answer about the sample. Many candidates thought that James' sample could not include people that he knew. In both parts, concise answers often scored better than long explanations, which often lead to choice or ambiguity.

##

### Foundation

Many candidates were confused in their understanding of why the proposed sampling process may not be fit for purpose. The most common unacceptable reason given related to the sporting prowess, or not, of the selected 10 boys. Many candidates thought that a time period was missing, confusing sampling with writing questions for a questionnaire.

In part (b), the most common mistakes were either to omit a time period in their question or offer overlapping response boxes or to draw a tally chart. A number of candidates failed to include response boxes in their question. Students need to be made aware that a question suitable for a questionnaire has two aspects to it; a written question and response boxes. They will not always be told this in the exam question.

### Higher

In part (a), many candidates scored at least one mark here – in many cases for indicating bias involving gender. Some also mentioned the bias involving age or PE. Quite a few scored a mark for stating that the sample was not large enough but some then spoilt this by saying that the whole class or whole school should be asked. Only a few commented on the fact that the sampling method was not random. Some students made erroneous reference to the structure of the question (e.g. a missing time frame) rather than commenting on the sample being used for the survey.

Many candidates gained full marks for part (b). Many had clearly been taught not to overlap the response boxes – responses of the type 0-1hr followed by 1hr1min-2hrs were often seen. Where full marks were not gained it was often possible to award one mark which was usually for a suitable question with time period then followed by overlapping boxes or boxes with no units.

Several candidates attempted to use inequalities in their answers but many did so inaccurately creating periods of time that overlapped.

## **E6. Foundation**

This question was well done by candidates of all abilities. Most could give a reasonably clear response and gain at least one mark for a valid criticism in part (a). This was usually the need for a time period, more clearly defined response boxes or the absence of a box for people who never go to the cinema. The design of a better question was also well done. Some candidates gave overlapping response boxes and sometimes candidates designed a data collection sheet rather than a question. However, these were seen less frequently than in the past. Over 70% of candidates scored at least 1 mark in each part of this question.

### **Higher**

Very few candidates failed to score any marks in this question. In part (a) most were awarded at least one mark for recognising that the response boxes were not really fit for purpose, although the level of explanation was often poor. Usually the second mark was then awarded for realising that a time frame was needed. Candidates who failed to score maximum marks in (a) often recovered to gain full marks in part (b). Overlapping response boxes was the usual reason for loss of marks in this part.

## **E7. Foundation**

Most candidates were able to gain some marks in this question. Often the loss of marks reflected the lack of comprehension or carelessness in reading the question. Some gave answers to part (a) in part (b) and to a lesser degree vice versa. In part (a), many candidates asked a suitable question but failed to give response boxes for the alternative replies.

In part (b), failure to quote a time period or giving over-lapping response boxes were the main reasons why marks were not awarded.

Candidates should ask themselves the question "Could I put my tick in more than one box?" If the answer is 'yes' then the response boxes are over-lapping and therefore need correcting.

Many candidates mixed up their responses to 28(a) and (b) or tried to combine them into a longer series of questions.

### **Higher**

Part (a) caused little difficulty, with most candidates gaining full marks for a suitable question with response boxes. When marks were lost it was usually because candidates omitted response boxes or produced a tally chart instead. In part (b) many candidates failed to realise that there were two ways in which the question could be improved. Firstly, many did not give a time period in their question, although some did include this in their responses. Secondly, the response boxes were sometimes too vague or, more commonly, the options were not mutually exclusive.