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General Certificate of Secondary Education
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Mathematics 43601H

(Specification 4360)

Unit 1: Statistics and Number (Higher)

Report on the Examination

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General

Many candidates appeared well prepared for the examination. There seemed to be ample time to complete the paper. Candidates were often unable to present their working in logical steps which occasionally hindered their progress.

Topics that were well done included:

- drawing a stem-and-leaf diagram
- multistep money problem
- Data Handling Cycle
- repeated proportional change
- calculating a stratified sample.

Topics which candidates found difficult included:

- interpreting and explaining results
- applying ratio
- relative frequency
- comparing results.

Question 1

Candidates produced accurate and complete stem-and-leaf diagrams in part (a). In part (b)(i) some candidates did not show the median or range for Class A. Those who gave measures often gave an incorrect median of 79. Part (b)(ii) tested the quality of written communication and required a conclusion backed up by a comment about the medians in context. However, few candidates referred back to their earlier results. Those who did often made a statement that the stride lengths were longer in Class B which was not true for all stride lengths, only on average.

Question 2

This was well answered with many fully correct responses. Most candidates used a calculator as was expected but those who relied on a build-up method often made errors through truncation or rounding. Occasionally candidates used the wrong multiplier, usually 1.6, or did not state a final decision.

Question 3

Candidates generally started this question well. In part (b) questionnaires were often seen but there were some well presented two-way tables. Some candidates gave succinct answers in part (c) that compared 17 : 3 with 12 : 3, but many tried to compare 17 : 3 with 16 : 4 or simply stated that 17 was more than 3 and did not refer to the ratio for all teenagers. Part (d) was poorly answered but trial and improvement proved to be the most successful method.

Question 4

Clear methods were usually shown in part (a). The most common errors were to divide 17.2 by 6 or to work out 5.4 ÷ 6. Part (b) proved a good discriminator. Often candidates quoted some or all of the stages of the Data Handling Cycle but failed to mention the given context. Others appeared to draw on experience from Science and described a fair test, sometimes in unnecessary detail. Part (c) was well answered.

Question 5

Although part (a) usually scored well, relative frequency was obviously not a topic that candidates are confident with. In part (b), some calculated that 11 seeds had germinated by the end of week 2 but forgot to subtract the 9 seeds that had already germinated in week 1. Candidates had difficulty justifying a decision and, in part (c), they often related the word 'fair' to the word 'average' instead of referring back to the gardener's results.

Question 6

Candidates performed well throughout this question. In part (a) the box plot was mostly drawn correctly with some misreads of scale. Whilst most candidates were able to make a point comparison between the box plots, few referred to both the median and the interquartile range. Simply comparing the ranges is insufficient at this level. Most candidates named one correct bound in part (b) but it was common to see 514.4 or 514.49 used for the upper bound. Many candidates scored full marks in part (c). Those that were unsure how to start assumed that B and C were equal or appeared to guess a value for C.

Question 7

There was a clear dividing line between those that understood the whole question and those that either made no attempt or scored no marks. In part (a) candidates often halved or doubled 0.36. In part (b) it was common to see $0.4 \times 2 = 0.8$ or $1 - 0.36 = 0.64$. Some went on to halve or square root this answer to find the probability in part (c). Another common error was to find the probability of exactly one white counter.

Question 8

Considering the challenging nature of this problem, it was pleasing to see that many candidates had some success. However, many gave a response that the probability was 0 because the scenario was impossible. Tree diagrams were often successfully used. Sample space diagrams were also commonly used but these led candidates to think that there were 15 instead of 20 possible outcomes as Jayden now had four coins.

Mark Ranges and Award of Grades

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