

# Principal Examiner Feedback

Summer 2013

Edexcel Level 2 Award (AST10)

Statistical Methods

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## **Edexcel Award in Statistical Methods (AST10)**

### **Principal Examiner Feedback – Level 1**

#### **Introduction**

There was no evidence to suggest that candidates had difficulty completing the paper in the given time. The vast majority of candidates completed their answers in the spaces provided and many showed the steps in their working. It was pleasing to see so many candidates showing the intermediate stages in their calculations. Some candidates did not use a ruler to draw the line segments in question 18 (b).

#### **Reports on Individual Questions**

##### **Question 1**

This question was generally well answered, however, some candidates made an error in counting the number of silver and blue vans. Parts (b) and (c) were generally correct.

##### **Question 2**

Most candidates were able to demonstrate a good understanding of pictograms. It was encouraging to see candidates writing the number of rolls in the table for each day. Parts (a) and (b) were generally well answered. In part (c) some candidates did not use a correct method in order to calculate the answer. A common approach to this question was  $60 - 50$ , but some candidates were not making reference to the table. Candidates should be encouraged to use the space in the question to show their working out.

##### **Question 3**

Part (a) of the question was well answered; many candidates could insert the correct values into the table. Some candidates made an error in part (b) by saying English had the smallest total number of marks. Parts (c) and (d) were answered well with a few candidates making errors.

##### **Question 4**

Many candidates drew the bar chart correctly. Common errors were that some candidates did draw the bar chart correctly, however, missed out the scale on the y-axis. Some candidates used a non-linear scale such as 5, 8, 9 and 12 and then attempted to draw the bar chart. Candidates should be encouraged to use a ruler to draw the bar chart.

### **Question 5**

Many candidates answered part (a) correctly but for part (b) various answers were circled. Candidates were less successful in part (b). Many did mark the probability between 0.75 and 1 but sometimes the cross was placed on 1. Those who sub-divided the scale into parts were usually successful. Part (d) was well answered; many candidates gave a correct answer as impossible.

### **Question 6**

This question was not answered well. In part (a), a common incorrect answer given was 10 and many candidates had difficulty in reading the table for this part. In part (b), many candidates did not know how to extract the relevant information from the graph and a common incorrect answer was 26 which was the answer to part (a).

### **Question 7**

Parts (a) and (b) were answered well and it was encouraging to see candidates read off values correctly. Some candidates found it difficult to complete the bar chart in part (c). Common errors made were not shading the bars in correctly and not drawing the bar for Kumar up to 15.

### **Question 8**

The vast majority of candidates were able to score full marks in part (a). Some used the full words but obvious abbreviations were also allowed. There were a few responses where the candidate showed a misunderstanding of the nature of the task and gave two soups, for example, as a combination. Many candidates obtained the correct or equivalent probability in part (b).

### **Question 9**

Many candidates obtained at least one mark for this question. Candidates must try to specify which axis they are discussing rather than saying 'no labels' which was a common incorrect answer.

### **Question 10**

Some candidates found part (a) difficult as they did not know how to find the mean. A common error was to find the median. It was not uncommon to find an answer of 78, where the candidate found the total of all the numbers but then failed to divide by 10. In part (b), some candidates had an idea of finding the range but then failed to carry out the subtraction of 6 from 11 to reach the required answer. A common incorrect answer came from  $10 - 6$ . In part (c), majority of candidates did not know how to compare the shoe sizes between the boys and girls. Candidates made incorrect statements such as 'the boys shoe size was bigger' which was a common incorrect answer given.

### **Question 11**

Many candidates gained the full marks on this question but it was disappointing to see that some candidates did not know the difference between negative and positive correlation.

### **Question 12**

Part (a) was well answered as many candidates obtained the correct answer but a common incorrect answer was 5. Similarly in part (b), many candidates did attempt to take the lowest value from the highest value but were handicapped by the fact they did not understand the key.

### **Question 13**

Both parts were well answered with the correct probabilities stated. A common incorrect answer was  $\frac{1}{8}$  in part (a). In part (b) some candidates went on to write an integer over seven.

### **Question 14**

In part (a) this question was well attempted with the majority of candidates gaining 3 marks, however, despite demonstrating the ability to correctly tally and write down correct frequencies, too many candidates made careless errors leading to a single row being incorrect. Part (b) was well answered as they correctly stated '10 or more'. Part (c) was well attempted with candidates scoring the full range of answers and very few blank responses. Most incorrect responses demonstrated an understanding of how to complete the table with a mixture of correct answers and nearly correct answers due to poor arithmetic. Some excellent responses to part (d), many candidates gained the full marks and the weaker candidates left the answer line blank or giving integer values as their answers.

### **Question 15**

In part (a) this question was well attempted with few blank responses seen. A common incorrect response was  $\frac{1}{4}$  and, in some cases, after correctly writing 0.40 in the table. Many candidates demonstrated that they understood what was required but poor arithmetic led to them losing the accuracy mark. Another common incorrect response was 0.50 which lost both marks. Part (b) was generally well answered, however, many candidates attempted to find the probability that the spinner will land on 1 or 2 and then not subtracting from 1.

### **Question 16**

Parts (a) and (b) were answered well by the majority of the candidates. Part (c) caused problems for many candidates. Candidates did not grasp the concept that  $120^\circ$  represented a third of 60 for the boys. Similarly, that  $90^\circ$  represented a quarter of 60 for the girls. A common incorrect method shown was to find a percentage of 120 boys and girls in total.

### **Question 17**

Parts (a) and (b) were not answered well, many candidates did not write down the correct probability in the first part. Interesting answers were stated in part (b) such as change the coin, however, not understanding the idea of increasing the number of throws.

### **Question 18**

Part (a) was well answered; however, some candidates had difficulty in reading off the correct value of 72. Some candidates did not correctly show the information on the graph and did not join up the points with line segments as required, therefore, did not gain the marks in part (b). Many candidates described the time-series graph by incorrectly saying it goes up and down. Candidates must be able to describe a trend clearly by stating it going down in this case.

### **Question 19**

Many candidates scored a mark of one on this question by saying that the answer to green sweets was  $60^\circ$  but then giving the next two answers incorrectly. Common incorrect answers were  $70^\circ$  and  $110^\circ$  for yellow and orange sweets. Some candidates clearly did not have a protractor (or ruler) but could label the sectors correctly.

### **Question 20**

Most candidates were able to score a mark, either by commenting on the overlap or from pointing out that there was no zero. Some candidates mentioned that there was no time frame in the question. Many candidates made incorrect statements which showed that they had no understanding of this question.

### **Question 21**

There were many good attempts at a data collection sheet. Candidates were expected to head up two columns with 'type' and 'Frequency'. It was encouraging to see candidates correctly designing a data collection sheet. A common error made by some candidates was to write out a question as if they were designing a questionnaire.

## Summary

Based on their performance on this paper, candidates should:

- Read questions fully and carefully before attempting to answer them
- Check arithmetic carefully
- Show working out to support the final answer
- Choose a suitable linear scale when drawing a bar chart and label the axes
- Be encouraged to use a ruler when drawing straight lines
- Use correct notation when writing a probability, i.e. write it as a fraction, decimal or percentage

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwant to/Pages/grade-boundaries.aspx>



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