

# Principal Examiner Feedback

January 2015

Pearson Edexcel Level 1 Award  
in Statistical Methods (AST10)

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

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

#### **Introduction**

There was no evidence to suggest that students had difficulty completing the paper in the given time. The vast majority of students completed their answers in the spaces provided and many showed the steps in their working. It was pleasing to see so many students showing the intermediate stages in their calculations. Some students did not write their answers on the answer lines provided. The presentation and use of probabilities was an issue for some students.

The design of this paper and the performance of students on this paper were consistent with previous papers so allowing a pass mark of about 66% of the total mark to be considered as showing proficiency in Statistical Methods at Level 1.

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

##### **Question 1**

Many students were able to score 1 mark in part (a) by matching 2 of the sentences to the correct word. However a number of students left one of the sentences unmatched once they had matched a sentence to categorical and discrete.

Part (b) was done extremely well with only a few students making an error in counting the colours.

##### **Question 2**

The majority of students were able to complete the dual bar chart. A few students failed to shade the bars to match the key and therefore lost one mark.

Parts (b) and (c) were answered well and it was encouraging to see students reading the correct values from the bar chart.

##### **Question 3**

In part (a) most students were able to write down the correct words to describe the likelihood of the given events. Common incorrect answer here was using "certain" instead of "likely".

In part (b) many students did mark the probability at 0.25 but too often the cross was placed on 0.5

##### **Question 4**

The majority of students were able to give at least one correct thing that was wrong with the question and many gave two correct reasons. It appears that students are well prepared for this type of question.

## Question 5

Part (a) was generally correct.

In part (b) most students were able to demonstrate a good understanding of pictograms. Most students were able to draw a diagram that split up the months with correct pictures that represented the months. Some students did forget to complete the key.

## Question 6

The majority of students were able to score at least 1 mark in part (a). There were a number of responses where the student showed a misunderstanding of the nature of the task and gave extra combinations which were not allowed.

Many students obtained the correct or equivalent probability in part (b) and in part (c). Some students gave answers that referred to likelihood and not probability. Students should be advised that a demand for a *probability* requires a numeric response, whilst a demand for a *likelihood* requires a word response.

## Question 7

The vast majority of students were able to score full marks. The common error was to draw one of the lines to an incorrect height.

## Question 8

This question was generally done well. In part (a) virtually all students were able to write down the price of a Ducati.

In part (b) virtually all the students were able to write down the two motorcycles that were the same colour.

In part (c) virtually all the students were able to write down the name of the oldest motorcycle.

In part (d) virtually all the students were able to write down the mode of the number of gears.

Part (e) was done less well. A significant number of students were not able to identify the largest and smallest values.

Part (f) was done well by many students and those who got it wrong wrote down the median as £5000, i.e. the median of the unordered data.

## Question 9

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

### **Question 10**

Part (a) was not answered well, many students did not write down the correct probability.

Part (b) was not answered well and a common incorrect answer was to say 'yes' and then give an incorrect reason such as 'because a dice has 6 sides'.

Many students scored one mark in part (c) as they understood the idea of increasing the number of throws but very few students were able to give a reason as to why this should be done.

### **Question 11**

In part (a) the majority of students were able to interpret the stem and leaf diagram and write down the mode.

Part (b) was also done well by the majority of students, but, some students after identifying 64 and 22 either did nothing with these values or incorrectly added them.

In part (c) many students gave the correct probability, but, as with Question 6 some students gave answers that referred to likelihood and not probability.

### **Question 12**

This question was done quite well. Most students were able to identify at least one thing wrong with the diagram. Students must try to specify which axis they are discussing rather than saying 'no labels'.

### **Question 13**

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

### **Question 14**

The vast majority of students were able to find the mode in part (a).

Some students found part (b) 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 1680, where the student found the total of all the numbers but then failed to divide by 12.

Part (c) was answered well by the majority of students.

### Question 15

Many students were able to gain full marks in part (a). Common errors included simple arithmetic errors or giving the total as 300.

Virtually all students were able to score the mark in part (b) as they correctly followed through from their table.

Part (c) was done less well by students. Again too many students gave answers that related to likelihood rather than a probability. In part (c)(i) the common incorrect answer was  $\frac{15}{45}$ . In part (c) (ii) many students scored 1 mark for 78 but then failed to write their answer as a probability.

### Question 16

Very few students were able to draw a completely correct time-series graph. Some students misread the scale and plotted points at incorrect heights whilst others did not join up the points with line segments as required and, therefore, did not gain full marks.

Many students recognised the upward trend in the number of footballs made. By far the most common incorrect response was "positive correlation".

### Question 17

Virtually all students were able to score the mark in part (a) as they were able to interpret the pie chart.

Many students scored both marks in part (b). Common incorrect answers given by students were "90", " $\frac{1}{4}$ " and "cheese and tomato". Very few students showed any working for this part of the question.

### Question 18

Again too many responses that related to likelihood rather than probability were seen. In part (a) some students gave an incorrect answer of 0.27 and as no working was shown this cost them a method mark.

Part (b) was done a little better and some students were able to follow through from their incorrect answer in part (a). Again too many students failed to show any working.

Part (c) was done well by many students but again too many students failed to show any working.

Throughout this question some students lost marks due to incorrect notation being used. Students should be encouraged to give their answers as a fraction, a decimal or a percentage.

### **Question 19**

Students found this question difficult. In part (a) many students tried to find a median without ordering the data and those who ordered the data sometimes went on to make an error.

Students did not answer part (b) well. Too many just stated values and made no comparisons. Some students compared the mean to the range and this is not what the question asked. Students should be encouraged to use correct terminology when making these sorts of comparisons.

### **Question 20**

A significant number of students were able to score at least 2 marks in this question - usually for correctly calculating one of the required angles and drawing it accurately in the pie chart. A surprising number of those students who were able to calculate all the angles correctly were then unable to draw them accurately in their pie chart. Students are encouraged to draw the lines for the sectors with a ruler and to have a protractor in order to draw angles accurately.

### **Summary**

Based on their performance on this paper, students should:

- Read questions fully and carefully before attempting to answer them
- Check arithmetic carefully
- Show working to support the final answer
- Be encouraged to use a ruler when drawing straight lines and a protractor when drawing angles
- 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/iwantto/Pages/grade-boundaries.aspx>





