

# Principal Examiner Feedback

January 2014

Pearson Edexcel Level 2 Award  
In Statistical Methods (AST20)

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# Edexcel Award in Statistical Methods (AST20)

## Principal Examiner Feedback – Level 2

### Introduction

There was no evidence to suggest that students had difficulty completing the paper in the given time.

Students were able to complete their answers in the spaces provided and many showed intermediate steps in their calculations.

Some students did not use a ruler to draw line segments in Q9(a).

### Reports on Individual Questions

#### Question 1

The vast majority of students answered this question well. Some students mixed up their answers for continuous and categorical and were only able to identify discrete.

#### Question 2

Many students were able to score all 3 marks in part (a) of this question. The common error was to get 2 tallies/frequencies incorrect. Students that did this were able to score 2 marks.

#### Question 3

Only a few students were able to give 2 correct reasons. Many students were able to score one mark but often students gave incorrect reasons referring to the  $x$  axis having only two months or the fact that the  $x$  axis had both months and years on it.

#### Question 4

The vast majority of students were able to score full marks for part (a) of this question. The common error was to incorrectly read the scale on the  $y$  axis.

The majority of students were also able to score full marks in part (b), however a few students failed to shade their partitions.

### Question 5

Many students were able to score both marks in part (a). A common error was for students to use incorrect notation and give an answer of  $\frac{0.15}{1}$

Many students were able to score both marks in part (b). A common error was for students to use incorrect notation and give an answer of  $\frac{0.4}{1}$

Many students were also able to score both marks in part (c). A common error was for students to calculate an estimate for a fair dice.

In part (d) many students were able to give a correct comparison with the fair dice. Some students compared probabilities and a few had incorrect figures in their comparison.

### Question 6

Part (a) was done well by the vast majority of students and the only error seen was to make one mistake in the entries.

The vast majority of students also answered part (b) well. A few students gave correct decimal equivalents.

### Question 7

Part (a) was not done particularly well by students. Too many wanted to state the disadvantage of a census and failed to miss the context of candles being destroyed

Many students were able to score at least one mark in part (b). Many students identified either that the sample was too small or candles should be tested throughout the day. A few students tried to argue that this was a good sample.

### Question 8

Part (a) was done particularly well by the vast majority of students and it appears that students are well rehearsed in looking for questionnaires with overlapping boxes/no time frame/boxes are non-exhaustive.

Part (b) was also done well by some students. Those that realised that the question related to time making phone calls gained full marks. A few students gave overlapping boxes. Too many students gave responses relating to 'text messages' or number of phone calls.

### Question 9

Many students were able to score 1 mark. The common error was to plot at end points or to either not join the points or to join the points with a curve.

Part (b) was done well by the vast majority of students.

### **Question 10**

In part (a) many students were able to identify the median. Students generally failed to show any working for this part and students may have been able to score 1 mark if they had shown their working.

In part (b) of the question the vast majority of students were able to score this mark.

A lot of students were able to calculate the mean correctly in part (c); however some students divided by 4 instead of 20

### **Question 11**

Outlier/anomaly seen by the vast majority of students in part (a). Some students failed to answer this part of the question.

In part (b) the vast majority of students were able to state the relationship. Those students that wanted to give a description of the type of correlation done so correctly but too many students wanted to state positive as an answer without reference to correlation.

In part (c) many students were able to draw an acceptable line of best fit.

Many students were able to give a correct response including those that followed through from an incorrect line of best fit in part (d). Some students lost the mark as they misinterpreted the scale on the y axis.

### **Question 12**

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

Many students were able to draw a box plot in part (b) and those students who scored 0 in part (a) were able to follow through their incorrect answers and score 3 marks.

Part (c) was left blank by a number of students. A common error was for students to state positive skew.

### **Question 13**

Part (a) was answered better than in the previous series and many students were able to correctly calculate the index number.

Only the best students were able to answer part (b) well and too many students failed to interpret the context of the question. A common error was for students to talk about the house prices rather than the percentage increase in house prices.

### **Question 14**

The vast majority of students were able to score at least one mark in part (a). The common error was to round 282.75 to 283

In part (b) the correct answer of 'upwards' was used by only a few students. 'Rising' or 'increasing' were the common answer given and whilst the marks were awarded centres should note that the correct answer should be that there is an upwards trend.

### **Question 15**

Many students were able to find the mean from a grouped frequency table. Common error was to use end point rather than mid-point. Some students divided by 5 rather than by 36

### **Question 16**

The vast majority of students were able to complete the tree diagram and gained full marks for part (a).

Most students were able to answer part (b). The common error was to add rather than multiple the probabilities.

Only the most able answered part (c) well. Many students failed to answer this question and the most common error seen was to add probabilities that should have been multiplied.

### **Question 17**

This question was either answered well, with a variety of methods seen, or done poorly. The common incorrect answer seen was either 12/13 by dividing the sample size by 4

### **Question 18**

The vast majority of students were able to score 1 mark. Very few students scored full marks as they failed/incorrectly compared the skew of the distributions.

Too many students failed to score marks as their answers did not compare the distributions.

The use of the words 'average' or 'spread' are not sufficient unless the words 'median' and 'range/IQR' are seen.

### **Question 19**

This question was answered better than the previous series but it still clear that students do not know the formula for calculating the standard deviation. Those students that knew the correct formula answered the question well.

## Question 20

This question was answered well by some students, however many students left this question blank. The common error was to add rather than subtract the students  $\sum x$  and  $\sum y$

### Summary

Based on their performance on this paper, students should:

- Read the question fully and carefully before attempting to answer them
- Show working out to support the final answer
- Be encouraged to use a ruler when drawing straight lines
- Check the scale given in questions
- Know how to calculate the standard deviation
- When describing skew in box plots use the quartiles to determine its direction





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





