

# Principal Examiner Feedback

Summer 2014

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. Some students did not learn all the required formulas for the examination.

It was pleasing to see so many students showing the intermediate stages in their calculations.

Some students did not use a ruler to draw the bars in Q2(a) and Q7(d).

Some students did not use a ruler to draw the lines for the sectors in the pie chart in Q20

### **Reports on Individual Questions**

#### **Question 1**

Part (a) was generally answered well. Many students were able to calculate the key by dividing 24 by 3 to obtain the correct answer.

Part (b) was answered very well as many students used their key to obtain the correct answers. Some students who calculated the incorrect value in part (a) were able to gain marks by following through.

Part (c) was well answered and it was very encouraging to see students representing the cars clearly on the pictogram.

#### **Question 2**

Part (a) and (b) was answered well and it was encouraging to see students reading the correct answers of the bar chart.

In part (c) majority of the students drew the bar chart clearly and this part of the question was answered well.

Many students added up the frequencies and wrote down the correct answer in part (d).

#### **Question 3**

This question was answered very well and nearly all the students gained full marks. It was very encouraging to see students reading and interpreting the table correctly.

#### **Question 4**

Part (a) was answered well. Most students were able to circle or underline the correct answer.

Part (b) caused some problems for some of the students who did not place a circle in the middle of the probability scale. Students should try to place a mark on the probability scale. A common incorrect answer here was to mark the probability scale at 1.

Part (c) was not answered well. Most students were not able to mark the probability scale correctly to show the required probability. A significant number of students incorrectly marked the probability scale at 1 again.

#### **Question 5**

This question was answered very well and nearly all the students gained full marks. It was very encouraging to see students reading the list carefully and diligently to gain the correct answers.

#### **Question 6**

This was not done well. Many students were unable to design a suitable and efficient data collection sheet to record the results. A common unacceptable answer was a table with columns headed with e.g. 'Book' and 'Favourite book'. Students were omitting the word 'type' to gain the marks. It was encouraging to see some students using the word 'genre'.

#### **Question 7**

Part (a), (b) and (c) was answered well. Many students were able to read and interpret the required information from the dual bar chart to answer each part of the question correctly.

Many students were able to draw the bars correctly in part (d). Some students did not shade the bar so losing a mark. Some students were careless in not drawing the bars to the required height thus losing both marks.

#### **Question 8**

This question was done well. Most students were able to write down all the possible combinations from the word BAT and 246. A common mistake by some students was to write down the correct combinations and then writing out combinations in different orders, e.g. (2, B).

### **Question 9**

Part (a) was not answered well. Many students did not write down the correct probability. Common incorrect answers were 'likely' and '7:10'.

Part (b) was not answered well. Many students did not write down the correct probability. Common incorrect answers were 'likely' and '59:100'.

In parts (a) and (b), students should be reminded to write probabilities as fractions, decimals or percentages.

Part (c) was answered well. Many students wrote down the correct answer followed the correct reason.

### **Question 10**

Part (a) was not answered well as many students did not know how to find the median. They did not order the data as required and simply wrote down the mode.

Part (b) was answered well as many students could add up the values to obtain 36 and then divide by 9 to obtain the correct answer. However, a minority of students confused the mean with the mode or the median.

In part (c) many students could not recall the formula for the range and, therefore, this part was not answered well. A common incorrect answer was  $7 - 3$  i.e. the first and last number on the list.

Part (d) was not answered well. Many students did not make a comparison and simply wrote 'In 1913 it was 5.2 and in 2013 it was 4'. This is not a comparison but a statement. Some students wrote 'the mean has decreased', however, made no reference to the year.

### **Question 11**

Part (a) was answered quite well. Some students did write down the correct answers as fractions. Some students wrote their answers in the form of a ratio which is incorrect.

Many students, in part (b), failed to recall the fact that total probability adds up to 1. Many students did not apply the correct method i.e.  $1 - 0.37$

### Question 12

Part (a) was generally done well. Most students were able to complete the frequency table for the given data. A common error was to miss out one or two of the numbers. Students should be advised to check their work more carefully, e.g. by comparing the total of their frequencies with the total number of data.

Part (b) was done quite well. Many students were able to write down the mode from the frequency table. A common incorrect answer here was 8, i.e. the frequency of the mode.

Part (c) was not done well. Few students were able to work out the total number of letters from the results. Many students did not know the method to calculate the total number of letters i.e.  $(1 \times 6) + (2 \times 8) + (3 \times 5) + (4 \times 5) + (5 \times 6)$ . A very common incorrect answer here was 30 which was calculated from  $6 + 8 + 5 + 5 + 6$

### Question 13

Part (a) was answered well. Many students knew how to find the modal height from the stem and leaf diagram. Some students who did have some idea wrote down 7 as their answer omitting the stem (2) which was a common incorrect answer.

For part (b), many students could not recall the formula for range so could not answer the question correctly.

Part (c) was not answered well as many students could not calculate the required probability. Common incorrect answers were  $\frac{3}{22}$  or  $\frac{0}{25}$

### Question 14

It was encouraging to see this question was answered fairly well. Many students could identify at least 1 reason why the graph was misleading or wrong. Many students attempted to write down three reasons even if one or two were incorrect.

### Question 15

Part (a) was answered well. Students could easily extract the number of blue Yamaha motorbikes from the two-way table.

Part (b) was generally answered well. Many students completed the two-way table. Most students could easily find 8 or 25 or 41, however, some students then found it difficult to find the rest of the answers.

### Question 16

Many students answered this question well and many students obtained 1 mark easily for writing down one thing wrong with the question. A common answer was to write 'No box for zero' and 'No box for more than 15' which only gains 1 mark.

### **Question 17**

Part (a) was not answered well as many students did not clearly understand the question. Some students wrote down the two correct probabilities but made no attempt to add them together. Common incorrect answers were '0.10' or '0.25'.

### **Question 18**

Part (a) was answered well. Most students were able to plot the points correctly and gain the full marks. Some students were careless and did not plot the points correctly ie just missing the coordinate at which the point should be plotted.

Part (b) was well answered well. Many students stated positive or gave a correct interpretation of the question.

Part (c) was not well answered and many students wrote down the incorrect answer which was outside of the given range. Students should have been aware of the fact that the answer must lie between 107 and 110.

### **Question 19**

Part (a) was answered poorly. Most students did not know how to describe a trend. Common incorrect answer was 'it goes up then down then up'.

In part (b) many students were able to read the time-series graph accurately to find the number of laptops sold in quarter 4 of 2011 and the number of laptops sold in quarter 4 but did not subtract 5 from 28 to obtain the correct answer. A significant number of students did not show the values from the graph for the two quarters - potentially losing both the method mark and the accuracy mark for writing down an incorrect answer without working. A common incorrect answer here was 33.

In part (c) most students were able to use the information given in the graph to write down a suitable estimate for the required quarter.

### **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 (usually  $90^\circ$  for Comedy) 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.

## **Summary**

Based on their performance on this paper, students are offered the following advice:

- 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 as in bar charts and pie charts
- To write down probabilities as fractions, decimals or percentages
- A demand for a probability requires a numeric response, whilst a demand for likelihood requires a word response
- To check their methods and answers more carefully

## **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>





