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Principal Examiner Feedback

January 2016

Pearson Edexcel Level 1 Award in Statistical Methods (AST10)

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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. The presentation and use of probabilities was an issue for some students.

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 question 2(b) and 5(c). Some students did not use a ruler to draw the lines for the sectors in the pie chart in question 18(a).

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

Part (a) was generally answered well. Many students were able to use the key to find the correct answer.

Part (b) was answered very well as many students used the key to obtain the correct answers. Some students found the difference between the books in the pictogram and then multiplied by 4 to obtain the correct answer.

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

Question 2

This question was generally done well. In part (a), most students were able to complete the frequency table correctly. Many students used tallies to complete the frequency table but some did not then write down the frequencies.

Part (b) was well answered. Many students completed a line graph but some students lost marks by drawing a bar chart.

Question 3

Part (a)(i) was answered well, however, some students wrote down numbers

which were greater than 10. They may not have read the question carefully or did not understand the question.

Part (a)(ii) was answered well. It was encouraging to see many students writing down four odd numbers.

Part (b) 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 **near** the middle of the probability scale rather than at the middle.

Question 4

Part (a) was answered well. Most students were able to work out the total number of people. Some students could not add 37 and 43 together to obtain the correct answer.

Part (b) was not answered well. Some students did obtain 7 but did not know how to express the answer as a probability. Common incorrect answers were 'likely' and '7:80'.

Part (c) was not answered well. Many students did not make a comparison and simply wrote 'Mode for food is 7 and the mode for clothes is 8. This is not a comparison but a statement. For example, students should be encouraged to say that the range of clothes is smaller than the range of food.

Question 5

Parts (a) and (b) were answered well. Many students could use the scale correctly to obtain the correct answers.

Part (c) was not answered well. Many students could draw the bars for 5 and 10, however, drawing a bar for 12 was difficult for many students as they did not understand the scale. Students should be encouraged to look at the scale on the *y*-axis but not simply count the small squares.

Question 6

This question was generally done well. In part (a) a majority of the students were able to write down the thickness of the Modern roofing tile.

In part (b) a majority of the students were able to write down the name of the roofing tile with the smallest cover width.

In part (c) a majority of the students were able to write down the name of the roofing tile that needs the longest nail.

In part (d) a majority of the students were able to write down the names of the two roofing tiles with the same weight per m^2.

Part (e) was not done well. A significant number of students did not realise that total probability adds up 1. Many students did not realise that they had to

subtract 0.04 from 1. A common incorrect answer was 0.06.

Question 7

Part (a) was answered well. Students could easily extract the number of male employees who attended the fire prevention course.

Part (b) was generally answered well. Many students completed the two-way table. Most students could easily find 15 or 12 or 42 or 57, however, some students then found it difficult to find the rest of the answers.

In part (c), 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 other box' and 'No box for more than 16' which only gains 1 mark. A common incorrect answer was to write 'Need more boxes'.

Question 8

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 9

Part (a) was done quite well. Many students were able to write down the mode from the frequency table. A common incorrect answer here was 10, ie the modal frequency.

Part (b) was done quite well. Many students were able to write down the probability that the family had no pets. A common incorrect answer was to write $^{0}/_{30}$.

Part (c) was not done well. Few students were able to work out the total number of pets from the results. Many students did not know the method to calculate the total number of pets i.e. (0 × 10) + (1 × 4) + (2 × 5) + (3 × 7) + (4 × 3) + (5 × 1). A very common incorrect answer here was 30 which was calculated from 10 + 4 + 5 + 7 + 3 + 1. Some students wrote down that 0 × 10 is 10 and leading to an answer of 62.

Question 10

This question was done well. Most students were able to write down all the possible combinations from SEC and PDG. A common mistake was to write down the correct combinations and then writing out combinations in different orders, e.g. (S, D) and (D,S).

Question 11

Part (a) was done quite well. Many students were able to write down the

required probability. Students should be encouraged to write the probability as 0

In part (b) less than half the students were able to write down the required probability. Common incorrect answers were $^{5}/_{19}$ and $^{6}/_{19}$. Many students did not add up 6 and 5 to find the correct probability.

In part (c) many students did write down the required probability. This part was answered well by a majority of students.

Question 12

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. 'Animal' and 'Zoo animal'. Students who omitted the word 'type' failed to gain the mark.

Question 13

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

In part (b) many students did not understand 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 14

In part (a) the majority of students were not able to interpret the stem and leaf diagram and write down the number of people who did not work any extra hours. A common incorrect answer was 0.

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

In part (c) many students did not know how to calculate the range. An incorrect method shown by some students was 48 – 2 thus obtaining 46. Students did not realise that the correct method was 48 – 0 to obtain 48.

Question 15

Part (a) was answered quite well. Some student wrote their answer as $^{0.49}/_{1}$. 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 – 0.49.

Question 16

Part (a) was not answered well as many students did not know how to find the mode.

Part (b) 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 middle number while others wrote down the mode.

Part (c) was answered well as many students could add up the values to obtain 62 and then divide by 11 to obtain the correct answer. However, a minority of students confused the mean with the mode or the median.

In part (d) many students could not recall the formula for the range and, therefore, this part was not answered well. A common incorrect answer was 7 – 4 i.e. the first and last number on the list.

Question 17

In part (a), many students could not write down the values of the two weights. Common incorrect answers were 63 and 69.

Part (b) was done quite well with a significant number of students being able to describe the correlation as positive. Common incorrect answers were ‘going up’ or ‘its increasing’.

Question 18

In part (a), a significant number of students were able to score at least 2 marks - usually for correctly calculating one of the required angles (usually 90^o for Granite) 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.

Part (b) was done poorly. Many students did not have any idea how to attempt this question.

Question 19

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 i.e. just missing the coordinate at which the point should be plotted.

Part (b) 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 (c) most students were able to use the information given in the graph and table to work out the total number of bracelets sold in quarter 3.

Summary

- Read the question fully and carefully before attempting to answer it
- Show working out to support the final answer
- Use a ruler when drawing straight lines as in bar charts and pie charts.
- 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.
- Check methods and answers more carefully.

Grade Boundaries

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