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Principal Examiner Feedback

Summer 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 formulae 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 18(a). Some students did not use a ruler to draw the lines for the sectors in the pie chart in question 17(a).

The design of this paper was consistent with previous papers and the performance of students on this paper was consistent with that expected when the paper was set so that a pass mark of about 66% of the total mark could be considered as showing proficiency in Statistical Methods at Level 1

Reports on Individual Questions

Question 1

This question was generally done well. Most students were able to complete the frequency table correctly for both dog and hamster in part (a). Many students were able recognise that 'type of pet' is an example of categorical data but some students incorrectly thought it was an example of continuous data.

Question 2

Part (a) was generally answered well. It was very encouraging to see students representing the 12 people that said yellow clearly on the pictogram.

Part (b) was answered very well as many students used the key to obtain the correct answer.

In part (c) many students were able to use the key to find the correct answer. Students should be encouraged to show their working as some students gave an incorrect answer with no working so scored 0 marks.

Question 3

This question was done well. Most students were able to write down all the possible combinations from the spinner and the cards. A common mistake was to write down the correct combinations and then repeat all the combinations eg (1, A) and (A, 1).

In part (b) too many students did not write down a correct probability. A common incorrect answer was 'unlikely'. Students should know that a demand for a *probability* requires a numeric response, whilst a demand for a *likelihood* requires a word response.

Question 4

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 never' and 'No box for always'; this only gains 1 mark.

Question 5

Most students were able to make at least one correct comparison. However many students did not make a comparison between the results for males and the results for females. A common incorrect answer was 'boys like computer games more'. This is not a comparison of males and females as it does not say "more than what or who".

Question 6

Many students were able to score 2 marks in part (a) by matching 2 of the sentences to the correct words.

In part (b) many students did mark the probability at 0.25 but too often the cross was placed on 0.5 or 0.

Question 7

This question was generally done well. In part (a) virtually all students were able to write down the spin speed of the Candy washing machine.

In part (b) virtually all the students were able to write down the two washing machines that had the same number of programs.

In part (c) virtually all the students were able to write down the name of the washing machine with the lowest estimated water consumption.

In part (d) virtually all the students were able to write down the mode of the wash capacity of the washing machines.

Part (e) was done less well. A significant number of students could not 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 416, ie the middle value of the unordered data.

Question 8

Many students gained full marks for this question but it was disappointing to see that some students did not know the difference between negative and positive correlation. Some students failed to recognise what no correlation looked like on a scatter graph.

Question 9

This question was answered well by the majority of students. As with Question 3(b) some students gave answers that referred to likelihood rather than to probability.

Question 10

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 3 as their answer omitting the stem (5). This was a common incorrect answer.

In part (b), some candidates wrote the range as “48 to 62” or similar rather than 14. This gained 1 mark.

Question 11

It was encouraging to see that this question was answered fairly well. Many students could identify at least 1 reason why the graph was misleading or wrong and a significant number of students were able to give two correct reasons.

Question 12

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 13

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 check their work more carefully, eg by comparing the total of their frequencies with the total number of pieces 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 10 ie the frequency of the mode (modal frequency).

Part (c) was not done well. Few students were able to work out the total number of goals scored from the results. Many students did not know the method to calculate the total number of goals scored ie $(1 \times 8) + (2 \times 10) + (3 \times 9) + (4 \times 3)$. A very common incorrect answer here was 30 which was calculated from $8 + 10 + 9 + 3$

Question 14

Part (a) was answered quite well. Some students wrote their answer as $\frac{0.7}{1}$. Some students wrote their answers in the form of a ratio which of course is incorrect.

Many students, in part (b), failed to recall the fact that total of the probabilities is 1. Many students did not apply the correct method.

Question 15

Part (a) was generally answered well. Many students completed the two-way table. Most students could easily find 8 and 3, however, some students then found it difficult to find the rest of the entries in the table.

Part (b) was answered well by the majority of students. A common incorrect answer was 2 bedrooms.

Part (c) was answered well by many of students. As with Question 3(b) and Question 9 some students

gave answers that referred to likelihood and not to probability. A common incorrect answer for part (c) (i) was $\frac{8}{30}$.

Question 16

This question caused students some difficulty. 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 profits made. By far the most common incorrect response was 'positive correlation'.

Question 17

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 on 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 for their pie chart, suggesting that they did not have a protractor. Students are encouraged to draw the lines for the sectors with a ruler.

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

Question 18

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

Part (b) was answered well by the majority of students. Students should show their working as some students lost marks by having an incorrect answer with no working.

In part (c) most students were able to make at least one correct comparison. However many students did not make a comparison between the results for children and the results for adults. Common incorrect answers included only stating figures e.g. 4 children gave a rating of one and 13 adults gave a rating of one.

Question 19

This question was not answered well. Only some students were able to write down an estimate for the required probability. A common incorrect answer in part (a) was $\frac{1}{2}$, presumably showing that students did not appreciate that the coin was biased.

In part (b) many students realised that the coin needed to be spun more times but failed to give a reason as to why this needed to be done.

Question 20

Part (a) was answered well as many students could add up the values to obtain 327 and then divide by 12 to obtain the correct answer. However some students confused the mean with the median.

In part (b) many students found the range but many students did not make a comparison and just stated figures. Some students wrote ‘the mean has decreased’, but then made no reference as to what this related to. Some students seemed to get confused between *travelling to work from home* and *travelling home from work*.

Summary

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

- 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 and use a protractor to draw and measure angles
- write down probabilities as fractions, decimals or percentages
- remember that a demand for a probability requires a numeric response, whilst a demand for likelihood requires a word response
- check methods and answers more carefully
- ensure that when asked to make a comparison that two or more things are actually compared

Grade Boundaries

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