



Pearson
Edexcel

Examiners' Report
Principal Examiner Feedback

Summer 2024

Pearson Edexcel GCE
In Statistics (9ST0)
Paper 01: Data & Probability

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Publications Code 9ST0_01_2406_ER

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General Comments

This paper was accessible to most candidates, particularly those that were numerical in nature. Candidates struggled with some of the explanations that were required and often stated the requirements of a test or distribution without the context of the given question.

Report on individual questions

Question 1

In part (a) candidates were generally able to interpret the value correctly as the decrease per year for the winning time, however a number incorrectly mixed up their variables and had the years decreasing with time. Very few students attained the second mark which came from the context of the question and that the time in each Olympic Games would decrease by four times that amount.

Part (b) was generally well answered although some students used 1940 rather than just 40 and most marks lost in this question were from candidates not giving their answer to two decimal places as asked.

Part (c) was again generally well answered but students mostly gained only one of the two marks available. They either referenced extrapolation or advances in technology but rarely both for full marks.

Question 2

Part (a) This question was generally well attempted, and most students realised that 0-0 was the smallest draw possibility. They then usually progressed in the second part of (a) to add all of the probabilities of the even numbers to get two marks.

Part (b) most students realised that a total of 6 goals was a limitation and they also noticed that a total of an even number did not necessarily mean that it was a draw. Very few students mentioned how the probabilities were calculated.

Parts (c) and (d) were generally very well attempted with a large number of students getting full marks. Some students did not use the continuity correction, and some did not use an approximation at all.

Part (e) students who did not use an approximation commented on the use of a Binomial which gained no credit and those who did comment on the Normal did not always give sufficient reasons. Students need to be aware that a large sample on its own is not enough and a reference to the Central Limit Theorem or the probability is required as per the mark scheme.

Part (f) Students stated the requirements for a Binomial Distribution, but it is not sufficient to simply state them, but they should apply them in context. It was important that they realise that the matches would not be independent and the probability of scoring more than 3 goals in a match would not be constant.

Question 3

Part (a) was not particularly well done in general by those students who were not methodical in their approach. Candidates who took each point in the question and answered it, did better overall. There were a large number of students who did not specify what was asked for and did not state either questionnaire or survey and so lost the first two marks. A number of students stated that they would use a random sample but then progressed to describe a stratified or other sample and so lost the third mark. Many did not specify that the sample should be large (or give a number bigger than or equal to 30) and so did not gain the fourth mark. There were a variety of incorrect tests stated but most students picked up the final mark for the Hypotheses. Some were rather careless in their writing of them however and lost the mark for not stating 'number of sports activities and Physics grade' and being more general in these.

Candidates would be well advised in such questions to check that they have included each of the requested points.

Part (b) as it was a straightforward Binomial was generally fully correct although some candidates used 0.3 as their probability or 30 as their X value, which was incorrect.

Part (c) was reasonably well done if students addressed each aspect of the Binomial distribution and gave reasons but even in this case, they were often unable to gain the second mark on independence of questions. They were able to understand that if some of the questions were easier than others then she might not have to guess every answer for the first mark.

Question 4

In Part (a) a considerable proportion of candidates did not know what was meant by blocking factors. Often these were muddled with the replication measures in (c).

Parts (b), (c) and (e) were generally better answered with most students gaining marks in these parts. Although the mark was lost in (b) if they mentioned that it made the test more 'accurate'. This is something that students should be advised to avoid when answering these types of questions.

Part (d) the main conclusion that gained marks in this part was that other factors may have lowered it and volunteers may have changed other parts of their diet. Very few students mentioned that a significance test would need to be taken to test the result or that it should be repeated.

Question 5

Part (a) was generally well answered with a variety of methods, although a few students rounded the values to 260 and 140 and therefore gained no marks.

In part (b) a large number of students did not realise that the number of bicycles parked at each station had an implication on the likelihood.

Part (c) most students could explain the negative correlation in context although some confused the explanatory and response variables and that the less bike thefts, the more lockers there would be which was incorrect. Students struggled more with the positive correlation and again mixed up their variables.

Part (d) was generally well done although some students described different types of security which only gained one mark.

Question 6

Part (a) was very poorly answered and the majority of students stated that a Discrete Distribution had a limit and a Continuous one went on infinitely. A large number of students stated that Discrete had values that could be counted and Continuous had ones that could be measured which is really too basic at this level. They also felt that Discrete only had integer values.

Part (b)i was well answered but (b)ii was not with very few using the 'given' rule. (b)iii was well answered with full marks overall.

In part (c) students did not understand that the random selection meant that each parcel was equally likely to be chosen but they did realise that the 8 hours was not a good idea as traffic etc would affect it.

Question 7

All parts of (a) were generally well done. Students coped well with the numerical aspects of this paper but struggled with the explanatory parts.

Part (b) was not well answered with many not realising that the numerator should not have the 30 at all. A number did split the earthquakes to have 17 in the second year however but did not explain how this affected the fraction.

Using Trial and improvement in this part gave a large number of students the opportunity to gain full marks in (c). Very few used the Alternative method in the mark scheme.

Question 8

Parts (a) and (b) were generally well answered with full marks, some students lost a mark in (b) due to incorrect rounding. Students would be well advised to read the front of the paper and give answers to three significant figures unless told otherwise.

Part (c) was very poorly answered and only a few candidates gained marks at all. Those who did mainly only gained the first two with many not then realising that there were six different combinations.

Part (d) was also poorly answered with very few understanding that stronger candidates would be more likely to win their first game, so she is less likely to meet a weaker candidate. They stated that she would then only meet similar candidates but of course stronger should also be there. Very few students gained full marks in this part.

Summary

Based on their performance on this paper, candidates should be advised to:

- Give all explanations in context.
- Look out for words shown in bold type.
- Keep their working to more than 3 significant figures accuracy throughout and only rounding after their final calculation.
- Use bullet points, each written in clear, specific and concise sentences for explanation questions.

