



Examiners' Report

Summer 2014

Pearson Edexcel GCE in Statistics S1R  
(6683/01R)

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# **Mathematics Unit Statistics 1**

## **Specification 6683/01R**

### **General Introduction**

The standard of the entry was high with many scoring full marks or nearly full marks on most questions. Some of the questions requiring explanations or interpretation were answered less well but the standard calculations and manipulation of probabilities were generally handled very confidently.

## Comments on Individual Questions

### Question 1

This proved to be an accessible start to the paper. Most students could clearly show that  $p = 0.2$  and the majority went on to find  $E(X)$  correctly. Many students though did not know what to do for  $F(0)$  and responses to Q01(c) were poor. Q01(d) had a mixed response, some could simplify the inequality to reach  $P(X > 1)$  but were then unable to link this with the correct probabilities from the table but plenty of students were able to secure full marks here. Most students knew the formula for  $\text{Var}(aX + 3)$  but some failed to realise that  $a = + 2$  and just gave the answer 2.

### Question 2

Some students could not recall the name of the distribution for  $X$  with several students calling it the discrete distribution rather than the discrete uniform distribution. The probabilities in Q02(b) were usually tackled well with only the less able students giving answers of 1 and 9 rather than 0.1 and 0.9. Q02(c)(i) was challenging for a few but Q02(ii) was answered more successfully.

### Question 3

Q03(a) was answered very well by almost all the students but some missed the “show that” part of the demand and only scored 4 of the 5 marks here. Q03(b) and Q03(c) were answered well and most knew how to tackle Q03(d) but some forgot to multiply their answer by 100 and gave an answer of £37 rather than £ 3700. A similar problem arose in Q03(e) with few explaining that the cost increases by £82.40 for each additional employee. Most knew the answer to Q03(f)(i) but Q03(f)(ii) was more challenging and only the more able students realised that the value of  $b$  would be halved.

### Question 4

This question was answered very well. Q04(a) could be answered quite readily by using the formula in the formula booklet and the given values for  $P(B)$  and  $P(A|B)$  and then it should have been a straightforward step to complete the Venn diagram in Q04(b). However some forgot to subtract  $P(A \cap B)$  when completing their diagram but the follow through marks meant that some credit could still be given for the later parts. Q04(c) and Q04(d) were usually answered well but in Q04(e) some tried to use a formula (which was often incorrect) rather than their Venn diagram and made the question much more complicated.

## Question 5

Most students secured the mark in Q05(a) although a few gave the boundaries for the whole interval. Q05(b) was seen to be challenging. Many students were not confident with the calculations for the height of bars on a histogram and in this case some could not deduce which bar was the second tallest. In Q05(c) some found the correct fraction of the upper or lower group but often they failed to do this for both groups. Most knew the correct technique to tackle Q05(d) but errors often occurred with the lower class boundaries or when rounding. Q05(e) was answered well with most using their calculated quartiles to justify their answer although a few calculated the mean and compared this to the median.

## Question 6

A number of students failed to label their diagram correctly in Q06(a) and a few gave an answer of 25% for Q06(b) but there was plenty of fully correct answers here. There were many correct answers to Q06(c) but although many used the value of 1.6449 for the equation based on 28, they only used 0.84 (rather than 0.8416) for the other equation. Q06(d) was a relatively straightforward application of the normal distribution and even those with incorrect answers from Q06(c) could secure the method marks here.

## Question 7

Most students scored all the marks for drawing the tree diagram and could then use this to answer Q07(b). In Q07(c) the conditional probability discriminated more with some failing to obtain the correct denominator. Q07(d) caused difficulties for a number of students: some did not realise they needed a probability of the form  $p(1 - p)$  where  $p$  was their denominator from Q07(c) and those who did secure this first mark often failed to multiply by 2 to account for both possible cases.

## **Grade Boundaries**

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