

# Examiners' Report

Summer 2014

Pearson Edexcel GCE in Statistics S4R  
(6686/01R)

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# **Mathematics Unit Statistics 4**

## **Specification 6684/01R**

### **General Introduction**

Students found this paper accessible and scored well. They were able to make a reasonable attempt at the majority of questions.

## Report on Individual Questions

### Question 1

The question proved to be an accessible starter for the majority, with many students gaining full marks. The most common errors were made in Q01(a) where they omitted to give the hypotheses and, although they knew something was normally distributed, few said it was the differences that were normally distributed.

### Question 2

Q02 (a) was generally well answered but Q02(b) proved to be quite challenging for students. The main errors were to work out the probability of a type II error rather than work out the power and not realising the probability of accepting a sample change for the second sample.

### Question 3

Q03(a) was answered well with many students gaining full marks. In Q03(b) although a pooled estimate of variance was worked out correctly by many students they then failed to use the square root of it in their calculations of  $t$ .

In Q03(c) students knew that to carry out the test in Q03(b) the variances needed to be equal but few commented on the fact that this has been established in Q03(a).

### Question 4

The first couple of parts of this question were generally well answered.

Q04(c) proved to be more demanding with only a minority of students managing to find the probability of a type II error successfully. Of those who were unsuccessful it was because they did not realise they needed to find  $P(S^2 < 664.281... | \sigma = 22.20)$

### Question 5

The majority of students gained full marks for Q05(a)(i) and Q05(a)(ii).

In Q05(b) many students did not realise that they needed to use the highest value from Q05(a)(i) and the lowest value from part Q05(a)(ii).

### Question 6

The first 4 parts of this question were well answered but the majority of students found parts Q06(e) and Q06(g) quite demanding. In part Q06(e) students knew what was required but few were able to clearly establish that  $\text{Var}(T) < \text{Var}(S)$ . In Q06(g) few students realised they needed to use their answer to Q06(f) and substitute it into the formula for  $\text{Var}(T)$  found in Q06(d).

## **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>

