

Write your name here

Surname

Other names

Pearson Edexcel
International
Advanced Level

Centre Number

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Candidate Number

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Statistics S2

Advanced/Advanced Subsidiary

Tuesday 24 June 2014 – Morning

Time: 1 hour 30 minutes

Paper Reference

WST02/01

You must have:

Mathematical Formulae and Statistical Tables (Blue)

Total Marks

Candidates may use any calculator allowed by the regulations of the Joint Council for Qualifications. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B). Coloured pencils and highlighter pens must not be used.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You should show sufficient working to make your methods clear. Answers without working may not gain full credit.
- Values from the statistical tables should be quoted in full. When a calculator is used, the answer should be given to an appropriate degree of accuracy.

Information

- The total mark for this paper is 75.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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P 4 3 1 7 3 A 0 1 2 4

PEARSON

A farmer supplies a bakery with eggs. The manager of the bakery claims that the proportion of eggs having a double yolk is 0.009

(b) State suitable hypotheses for testing these claims.

In a batch of 500 eggs the baker records 9 eggs with a double yolk.

(c) Using a suitable approximation, test at the 5% level of significance whether or not this supports the farmer's claim.

(5)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

$$f(y) = \begin{cases} k(4 - y^2) & 0 \leq y \leq 2 \\ 0 & \text{otherwise} \end{cases}$$

- (a) Show that the value of k is $\frac{3}{16}$ (4)

(b) the mean number of kilograms of flour used by the factory in a week, (4)

- (c) the standard deviation of the number of kilograms of flour used by the factory in a week,

- (d) the probability that more than 1500 kg of flour will be used by the factory next week. **(3)**

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Q2

(Total 16 marks)



Given that $E(T) = 2$ and $\text{Var}(T) = \frac{16}{3}$, find

- (a) the value of α and the value of β ,

- (b) $P(T < 3.4)$



(b) Find the probability that fewer than 3 of these pieces of ribbon have length more than 100 cm. (3)

(c) Using a suitable approximation, find the probability that more than 127 of these pieces of ribbon will have length more than 100 cm. (6)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a full page of blank, lined paper. It features approximately 28 horizontal grey lines spaced evenly across the page, typical of standard notebook paper. The lines are thin and light grey, set against a plain white background. There is no handwriting or other markings on the page.

[illegible]

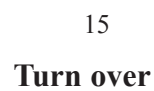
(Total 12 marks)

Q4



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- This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(Total 7 marks)







This image shows a full page of blank, lined paper. It features approximately 28 horizontal gray lines spaced evenly apart, typical of standard notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings present.

Q6

This material is sold in rolls of length 200 m. Susie buys 4 rolls of this material.

(b) Find the probability that only one of these rolls will have fewer than 7 flaws.

(6)

A piece of this material of length x m is produced.

Using a normal approximation, the probability that this piece of material contains fewer than 26 flaws is 0.5398

(c) Find the value of x .

(8)



[illegible]

[illegible]

[illegible]

Question 7 continued

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(Total 16 marks)

Q7

TOTAL FOR PAPER: 75 MARKS

END

