

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

Monday 22 June 2015 – 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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PEARSON



(Total 10 marks)

Q1



- (a) Find the probability that one of these biscuits, selected at random, does not contain 8 chocolate chips.

(2)

A small packet contains 4 of these biscuits, selected at random.

- (b) Find the probability that each biscuit in the packet contains at least 8 chocolate chips.

(3)

A large packet contains 9 of these biscuits, selected at random.

- (c) Use a suitable approximation to find the probability that there are more than 75 chocolate chips in the packet.

(5)

A shop sells packets of biscuits, randomly, at a rate of 1.5 packets per hour. Following an advertising campaign, 11 packets are sold in 4 hours.

- (d) Test, at the 5% level of significance, whether or not there is evidence that the rate of sales of packets of biscuits has increased. State your hypotheses clearly.

(5)

[illegible]

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 20 evenly spaced horizontal grey lines across its entire width, providing a guide for handwriting or typing. The background is a clean, solid white color.

(Total 15 marks)

Q2



(2)

(6)

(3)

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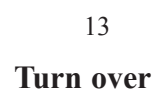
This image shows a full page of blank, lined paper. It features approximately 28 horizontal blue or grey lines spaced evenly apart, typical of notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other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

Q3

(Total 11 marks)



(Total 5 marks)



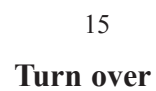
The statistic Y is calculated using the formula

$$Y = \frac{2X_1 + X_2}{3}$$

- (a) List all the possible values of Y . (2)
- (b) Find the sampling distribution of Y . (5)
- (c) Find $E(Y)$. (2)



(Total 9 marks)



- (b) State an assumption that has been made for the model in part (a) to be suitable. (1)

(c) Find the largest possible value of r . (2)

The probability that at least t of these customers buy insurance is 0.938, correct to 3 decimal places.

- The shop now offers an extended warranty on all products. Following this, a random sample of 25 customers is taken and 6 of them buy insurance.

- (e) Test, at the 10% level of significance, whether or not there is evidence that the proportion of customers who buy insurance has decreased. State your hypotheses clearly.

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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.

[illegible]

Q6



[illegible]

Question 7 continued

(Total 10 marks)

Q7

TOTAL FOR PAPER: 75 MARKS

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