

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel International Advanced Level

Time 1 hour 30 minutes

Paper

reference

WST02/01

Mathematics

International Advanced Subsidiary/Advanced Level Statistics S2

You must have:

Mathematical Formulae and Statistical Tables (Yellow), calculator

Total Marks

Candidates may use any calculator permitted by Pearson regulations. 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).
- **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. If a calculator is used instead of the tables, the value should be given to an equivalent degree of accuracy.
- Inexact answers should be given to three significant figures unless otherwise stated.

Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 6 questions in this question paper. 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.
- If you change your mind about an answer, cross it out and put your new answer and any working underneath.

Turn over ►

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- (d) determine, at the 5% level of significance, whether there is evidence to support the manager's belief. State your hypotheses clearly.

Question 1 continued

Handwriting practice area with 30 horizontal lines.

DO NOT WRITE IN THIS AREA



Question 1 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Question 1 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Lined area for writing the answer to Question 1.

(Total 14 marks)

Q1

Grading boxes for Q1.



- (c) Calculate the probability that exactly 6 of the pieces of pasta are less than 12 cm long. (3)

Question 2 continued

DO NOT WRITE IN THIS AREA

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DO NOT WRITE IN THIS AREA



Question 2 continued

Lined area for writing the answer to Question 2.



Question 2 continued

DO NOT WRITE IN THIS AREA

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DO NOT WRITE IN THIS AREA

(Total 11 marks)

Q2





Question 3 continued

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Question 3 continued

Handwriting practice area with 25 horizontal lines.



Question 3 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Lined area for writing the answer to Question 3.

(Total 10 marks)

Q3



- (2)

(2)

(3)

(4)

(2)

Question 4 continued

Handwriting practice area with 30 horizontal lines.

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DO NOT WRITE IN THIS AREA

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Question 4 continued

Lined area for writing the answer to Question 4.



Question 4 continued

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Q4

(Total 15 marks)



(c) Calculate Alif's expected score. (2)

Question 5 continued

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DO NOT WRITE IN THIS AREA

Q5

(Total 8 marks)



6. The continuous random variable Y has probability density function $f(y)$ given by

$$f(y) = \begin{cases} \frac{1}{14}(y+2) & -1 < y \leq 1 \\ \frac{3}{14} & 1 < y \leq 3 \\ \frac{1}{14}(6-y) & 3 < y \leq 5 \\ 0 & \text{otherwise} \end{cases}$$

- (a) Sketch the probability density function $f(y)$ (2)

Given that $E(Y^2) = \frac{131}{21}$

- (b) find $\text{Var}(2Y - 3)$ (4)

The cumulative distribution function of Y is $F(y)$

- (c) Show that $F(y) = \frac{1}{14} \left(\frac{y^2}{2} + 2y + \frac{3}{2} \right)$ for $-1 < y \leq 1$ (2)

- (d) Find $F(y)$ for all values of y (5)

- (e) Find the exact value of the 30th percentile of Y (2)

- (f) Find $P(4Y \leq 5 \mid Y \leq 3)$ (2)

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Question 6 continued

Handwriting practice area with 30 horizontal lines.

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DO NOT WRITE IN THIS AREA



Question 6 continued

Handwriting practice area with 30 horizontal lines.

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P 7 1 2 8 5 A 0 2 3 2 4

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11

TOTAL FOR PAPER: 75 MARKS

END