

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

WST03/01

Mathematics

International Advanced Subsidiary/Advanced Level Statistics S3

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 7 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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- (c) Explain why this suggests that a stratified sample of size 60 may be better than the systematic sample taken by the Headteacher. (2)

Question 1 continued

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Q1

(Total 8 marks)



- He selects, at random, 10 of the eggs produced and weighs each of them.

You may assume that these weights are a random sample from a normal distribution with standard deviation 1.9 g

The total weight of these 10 eggs is 537.2 g

- (a) Find a 95% confidence interval for the mean weight of the eggs produced by Krishi's chickens. (4)

Krishi was hoping to obtain a 99% confidence interval of width at most 1.5 g

- (b) Calculate the minimum sample size necessary to achieve this. (4)

Question 2 continued

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Q2

(Total 8 marks)



- | Driver | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> | <i>F</i> | <i>G</i> | <i>H</i> | <i>I</i> | <i>J</i> |
|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Fastest qualifying lap | 62.94 | 63.92 | 63.63 | 62.95 | 63.97 | 63.87 | 64.31 | 64.64 | 65.18 | 64.21 |
| Finishing position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Question 3 continued

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Q3

(Total 8 marks)



Question 4 continued

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Question 4 continued

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Question 4 continued

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Lined area for writing the answer to Question 4.

(Total 10 marks)

Q4

Grading box for Q4.



- The results are summarised below, where x denotes the weight, in kg, of a male Great Dane dog and y denotes the weight, in kg, of a female Great Dane dog.

(1)

Question 5 continued

Handwriting practice area with 30 horizontal lines.

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Question 5 continued

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Question 5 continued

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(Total 15 marks)

Q5



6. The number of emails per hour received by a helpdesk were recorded. The results for a random sample of 80 one-hour periods are shown in the table.

Number of emails per hour	0	1	2	3	4	5	6
Frequencies	1	10	23	15	19	9	3

- (a) Show that the mean number of emails per hour in the sample is 3 (1)

The manager believes that the number of emails per hour received could be modelled by a Poisson distribution.

The following table shows some of the expected frequencies.

Number of emails per hour	Expected Frequencies
0	r
1	11.949
2	17.923
3	17.923
4	13.443
5	s
≥ 6	t

- (b) Find the values of r , s and t , giving your answers to 3 decimal places. (4)
- (c) Using a 10% significance level, test whether or not a Poisson model is reasonable. You should clearly state your hypotheses, test statistic and the critical value used. (7)



Question 6 continued

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Question 6 continued

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Question 6 continued

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Lined area for writing the answer to Question 6.

Q6

Grading boxes for Question 6.

(Total 12 marks)





Question 7 continued

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Question 7 continued

Lined area for writing the answer to Question 7.



Question 7 continued

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TOTAL FOR PAPER: 75 MARKS

24

