

Please check the examination details below before entering your candidate information			
Candidate surname		Other names	
Pearson Edexcel GCE		Centre Number	Candidate Number
Tuesday 25 June 2019			
Morning (Time: 1 hour 30 minutes)		Paper Reference 6686/01	
Statistics S4 Advanced/Advanced Subsidiary			
You must have: Mathematical Formulae and Statistical Tables (Pink)			Total Marks

Candidates may use any calculator allowed 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). 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 ►

P55865A

©2019 Pearson Education Ltd.

1/1/1/1/e2/



Pearson

- (1)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 1 continued

Handwriting practice area with horizontal lines.

(Total 14 marks)

Q1





DO NOT WRITE IN THIS AREA

Leave
blank

Question 2 continued

Lined area for writing the answer to Question 2.

(Total 9 marks)

Q2



- (a) Show that

and

are both unbiased estimators for p .

(4)

- (b) Find the variance for each of these estimators.

(4)

- (c) State, with a reason, which of the two estimators for p is the better.

(1)

Question 3 continued

Handwriting practice area with 25 horizontal lines.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Leave
blank

Question 3 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

Leave
blank

Question 3 continued

Lined area for writing the answer to Question 3.

(Total 9 marks)

Q3



Question 4 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 4 continued

Lined area for writing the answer to Question 4.

(Total 8 marks)

Q4



5. The weights of Great Dane dogs are normally distributed.

A random sample of 12 Great Dane dogs is taken and their weights, to the nearest kilogram, are recorded. The results are given below.

73 68 67 69 71 72 70 77 74 72 70 69

Stating your hypotheses and showing your working clearly, test at the 5% level of significance,

- (a) whether or not the mean weight of Great Dane dogs is less than 72 kg, (8)

- (b) whether or not the standard deviation of the weights of Great Dane dogs is 6 kg. (5)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

Leave
blank

Question 5 continued

Lined area for writing the answer to Question 5.

(Total 13 marks)

Q5



- (7)

Question 6 continued

Handwriting practice area with 30 horizontal lines.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



Question 6 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 6 continued

Handwriting practice area with horizontal lines.

(Total 15 marks)

Q6



Question 7 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

1

TOTAL FOR PAPER: 75 MARKS

END