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| Write your name here | | | | | | | | | |
| Surname | Other names | | | | | | | | |
| Pearson Edexcel GCE | Centre Number | | | | | | | | |
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| <h1 style="margin: 0;">Statistics S1</h1> <h2 style="margin: 0;">Advanced/Advanced Subsidiary</h2> | | | | | | | | | |
| Wednesday 13 June 2018 – Morning Time: 1 hour 30 minutes | Paper Reference 6683/01 | | | | | | | | |
| You must have: Mathematical Formulae and Statistical Tables (Pink) | Total Marks <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div> | | | | | | | | |

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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2. The following grouped frequency distribution summarises the number of minutes, to the nearest minute, that a random sample of 100 motorists were delayed by roadworks on a stretch of motorway one Monday.

| Delay (minutes) | Number of motorists (f) | Delay midpoint (x) |
|-----------------|-------------------------|--------------------|
| 3–6 | 38 | 4.5 |
| 7–8 | 25 | 7.5 |
| 9–10 | 18 | 9.5 |
| 11–15 | 12 | 13 |
| 16–20 | 7 | 18 |

(You may use $\sum fx^2 = 8096.25$)

A histogram has been drawn to represent these data.

The bar representing a delay of (3–6) minutes has a width of 2 cm and a height of 9.5 cm.

- (a) Calculate the width and the height of the bar representing a delay of (11–15) minutes. (3)
- (b) Use linear interpolation to estimate the median delay. (2)
- (c) Calculate an estimate of the mean delay. (2)
- (d) Calculate an estimate of the standard deviation of the delays. (2)

One coefficient of skewness is given by $\frac{3(\text{mean} - \text{median})}{\text{standard deviation}}$

- (e) Evaluate this coefficient for the above data, giving your answer to 2 significant figures. (1)

On the following Friday, the coefficient of skewness for the delays on this stretch of motorway was -0.22

- (f) State, giving a reason, how the delays on this stretch of motorway on Friday are different from the delays on Monday. (2)



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Question 5 continued

Lined area for writing the answer to Question 5.

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Q5

(Total 14 marks)

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