

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Pearson Edexcel
International
Advanced Level

Centre Number

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Candidate Number

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Tuesday 19 January 2021

Afternoon (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 (Blue), calculator

Total Marks

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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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- (e) Use a suitable test, at the 5% level of significance, to assess whether or not there is evidence that the proportion of oysters not surviving to be harvested is more than 5%. State your hypotheses clearly. (5)

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Question 1 continued

Lined area for writing the answer to Question 1.



Question 1 continued

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Question 1 continued

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Handwriting practice area with 30 horizontal lines.

Q1

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(Total 14 marks)



- $$F(w) = \begin{cases} 0 & w < 0 \\ \frac{1}{3} \left(w - \frac{w^4}{256} \right) & 0 \leq w \leq 4 \\ 1 & w > 4 \end{cases}$$

- (c) use algebraic integration to find $\text{Var}(W)$

Question 2 continued

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Question 2 continued

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Question 2 continued

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(Total 10 marks)

Q2	
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- (2)

(3)

(5)

- (2)

(5)

Question 3 continued

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Question 3 continued

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Question 3 continued

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(Total 17 marks)

Q3	
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4. A continuous random variable X has probability density function

$$f(x) = \begin{cases} k(a-x)^2 & 0 \leq x \leq a \\ 0 & \text{otherwise} \end{cases}$$

where k and a are constants.

- (a) Show that $ka^3 = 3$

(3)

Given that $E(X) = 1.5$

- (b) use algebraic integration to show that $a = 6$

(4)

- (c) Verify that the median of X is 1.2 to one decimal place.

(3)



Question 4 continued

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Question 4 continued

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Question 4 continued

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Q4

(Total 10 marks)



- (d) Find $P(X^2 > 5)$ (4)

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Question 5 continued

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Question 5 continued

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Question 5 continued

Lined area for writing the answer to Question 5.

(Total 14 marks)

Q5



Question 6 continued

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Question 6 continued

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Q6

(Total 10 marks)

TOTAL FOR PAPER: 75 MARKS

END

