

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel**  
**International**  
**Advanced Level**

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Sample Assessment Materials for first teaching September 2018

(Time: 1 hour 30 minutes)

Paper Reference **WST01/01**

**Mathematics**

**International Advanced Subsidiary/Advanced Level**  
**Statistics S1**

**You must have:**

Mathematical Formulae and Statistical Tables, 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.
- 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 ►

S59767A

©2018 Pearson Education Ltd.

1/1/1/1/1/



S 5 9 7 6 7 A 0 1 2 8



Pearson



### Question 1 continued

**DO NOT WRITE IN THIS AREA**

**DO NOT WRITE IN THIS AREA**

**DO NOT WRITE IN THIS AREA**

Question 1 continued

Lined area for writing the answer to Question 1.

**(Total for Question 1 is 12 marks)**

2. The time taken to complete a puzzle, in minutes, is recorded for each person in a club. The times are summarised in a grouped frequency distribution and represented by a histogram.

One of the class intervals has a frequency of 20 and is shown by a bar of width 1.5 cm and height 12 cm on the histogram. The total area under the histogram is  $94.5 \text{ cm}^2$

Find the number of people in the club.

(3)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 2 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Q2

(Total for Question 2 is 3 marks)

- $$P(X = x) = \frac{1}{5} \quad x = 1, 2, 3, 4, 5$$

- Find

- $$(c) \quad F(3) \tag{1}$$

- $$(d) \ P(3X - 3 > X + 4) \tag{2}$$

- (e) Write down  $E(X)$
- (1)**

- (f) Find  $E(X^2)$

- (g) Hence find  $\text{Var}(X)$  **(2)**

Given that  $E(aX - 3) = 11.4$

- (h) find  $\text{Var}(aX - 3)$



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 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 answers.

(Total for Question 3 is 14 marks)

Q3

4. A researcher recorded the time,  $t$  minutes, spent using a mobile phone during a particular afternoon, for each child in a club.

The researcher coded the data using  $v = \frac{t - 5}{10}$  and the results are summarised in the table below.

Coded Time ( $v$ )	Frequency ( $f$ )	Coded Time Midpoint ( $m$ )
$0 \leq v < 5$	20	2.5
$5 \leq v < 10$	24	$a$
$10 \leq v < 15$	16	12.5
$15 \leq v < 20$	14	17.5
$20 \leq v < 30$	6	$b$

(You may use  $\sum fm = 825$  and  $\sum fm^2 = 12\,012.5$ )

- (a) Write down the value of  $a$  and the value of  $b$ . (1)
- (b) Calculate an estimate of the mean of  $v$ . (1)
- (c) Calculate an estimate of the standard deviation of  $v$ . (2)
- (d) Use linear interpolation to estimate the median of  $v$ . (2)
- (e) Hence describe the skewness of the distribution. Give a reason for your answer. (2)
- (f) Calculate estimates of the mean and the standard deviation of the time spent using a mobile phone during the afternoon by the children in this club. (4)

---

---

---

---

---

---

---

---

---

---

Question 4 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 4 continued.



**(Total for Question 4 is 12 marks)**

- |          |               |               |               |               |
|----------|---------------|---------------|---------------|---------------|
| $x$      | 0             | 1             | 2             | 3             |
| $P(X=x)$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{2}$ |

If  $X \neq 3$  then the die is rolled again and the final score is the sum of the two numbers.

(a) Find  $P(T = 2)$

(b) Find  $P(T = 3)$  (3)

(c) Given that the die is rolled twice, find the probability that the final score is 3 (3)



### Question 5 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**

**(Total for Question 5 is 8 marks)**



Question 6 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 6 continued.



**(Total for Question 6 is 11 marks)**

- (7)



### Question 7 continued

**DO NOT WRITE IN THIS AREA**

**DO NOT WRITE IN THIS AREA**

**DO NOT WRITE IN THIS AREA**



### 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**

--	--

**TOTAL FOR PAPER IS 75 MARKS**