

CANDIDATE  
NAME

--

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--

**MATHEMATICS**

**9709/62**

Paper 6 Probability & Statistics 1 (S1)

**October/November 2017**

**1 hour 15 minutes**

Candidates answer on the Question Paper.

Additional Materials: List of Formulae (MF9)

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.

Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified in the question.

The use of an electronic calculator is expected, where appropriate.

You are reminded of the need for clear presentation in your answers.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 50.

This document consists of **11** printed pages and **1** blank page.

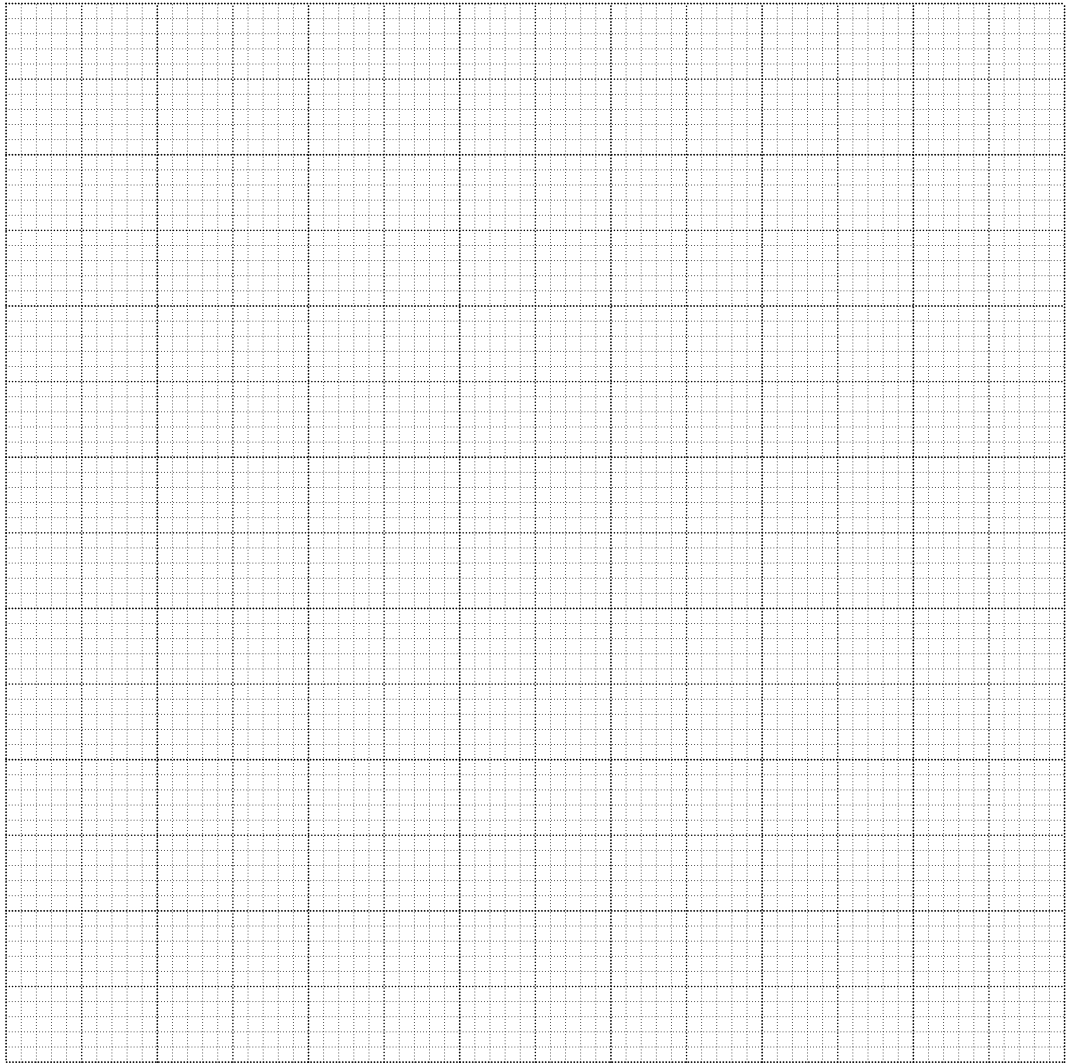




- 2 The circumferences,  $c$  cm, of some trees in a wood were measured. The results are summarised in the table.

Circumference ( $c$ cm)	$40 < c \leq 50$	$50 < c \leq 80$	$80 < c \leq 100$	$100 < c \leq 120$
Frequency	14	48	70	8

- (i) On the grid, draw a cumulative frequency graph to represent the information. [3]



- (ii) Estimate the percentage of trees which have a circumference larger than 75 cm. [2]

.....

.....

.....

- 3 A box contains 6 identical-sized discs, of which 4 are blue and 2 are red. Discs are taken at random from the box in turn and not replaced. Let  $X$  be the number of discs taken, up to and including the first blue one.

(i) Show that  $P(X = 3) = \frac{1}{15}$ . [2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(ii) Draw up the probability distribution table for  $X$ . [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

4 A fair tetrahedral die has faces numbered 1, 2, 3, 4. A coin is biased so that the probability of showing a head when thrown is  $\frac{1}{3}$ . The die is thrown once and the number  $n$  that it lands on is noted. The biased coin is then thrown  $n$  times. So, for example, if the die lands on 3, the coin is thrown 3 times.

(i) Find the probability that the die lands on 4 and the number of times the coin shows heads is 2. [3]

.....

.....

.....

.....

(ii) Find the probability that the die lands on 3 and the number of times the coin shows heads is 3. [1]

.....

.....

.....

.....

(iii) Find the probability that the number the die lands on is the same as the number of times the coin shows heads. [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....





6 (a) Find the number of different 3-digit numbers greater than 300 that can be made from the digits 1, 2, 3, 4, 6, 8 if

(i) no digit can be repeated, [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(ii) a digit can be repeated and the number made is even. [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....





7 In Jimpuri the weights, in kilograms, of boys aged 16 years have a normal distribution with mean 61.4 and standard deviation 12.3.

(i) Find the probability that a randomly chosen boy aged 16 years in Jimpuri weighs more than 65 kilograms. [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(ii) For boys aged 16 years in Jimpuri, 25% have a weight between 65 kilograms and  $k$  kilograms, where  $k$  is greater than 65. Find  $k$ . [4]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



**BLANK PAGE**

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.