



Cambridge International AS & A Level

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
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MATHEMATICS

9709/05

Paper 5 Probability & Statistics 1

For examination from 2020

SPECIMEN PAPER

1 hour 15 minutes

You must answer on the question paper.

You will need: List of formulae (MF19)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined page at the end of this booklet; the question number or numbers must be clearly shown.
- You should use a calculator where appropriate.
- You must show all necessary working clearly; no marks will be given for unsupported answers from a calculator.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **14** pages. Blank pages are indicated.

- 1 The following back-to-back stem-and-leaf diagram shows the annual salaries of a group of 39 females and 39 males.

Females				Males	
(4)	5 2 0 0	20	3		(1)
(9)	9 8 8 7 6 4 0 0 0	21	0 0 7		(3)
(8)	8 7 5 3 3 1 0 0	22	0 0 4 5 6 6		(6)
(6)	6 4 2 1 0 0	23	0 0 2 3 3 5 6 7 7		(9)
(6)	7 5 4 0 0 0	24	0 1 1 2 5 5 6 8 8 9		(10)
(4)	9 5 0 0	25	3 4 5 7 7 8 9		(7)
(2)	5 0	26	0 4 6		(3)

Key: 2 | 20 | 3 means \$20 200 for females and \$20 300 for males.

- (a) Find the median and the quartiles of the females' salaries. [2]

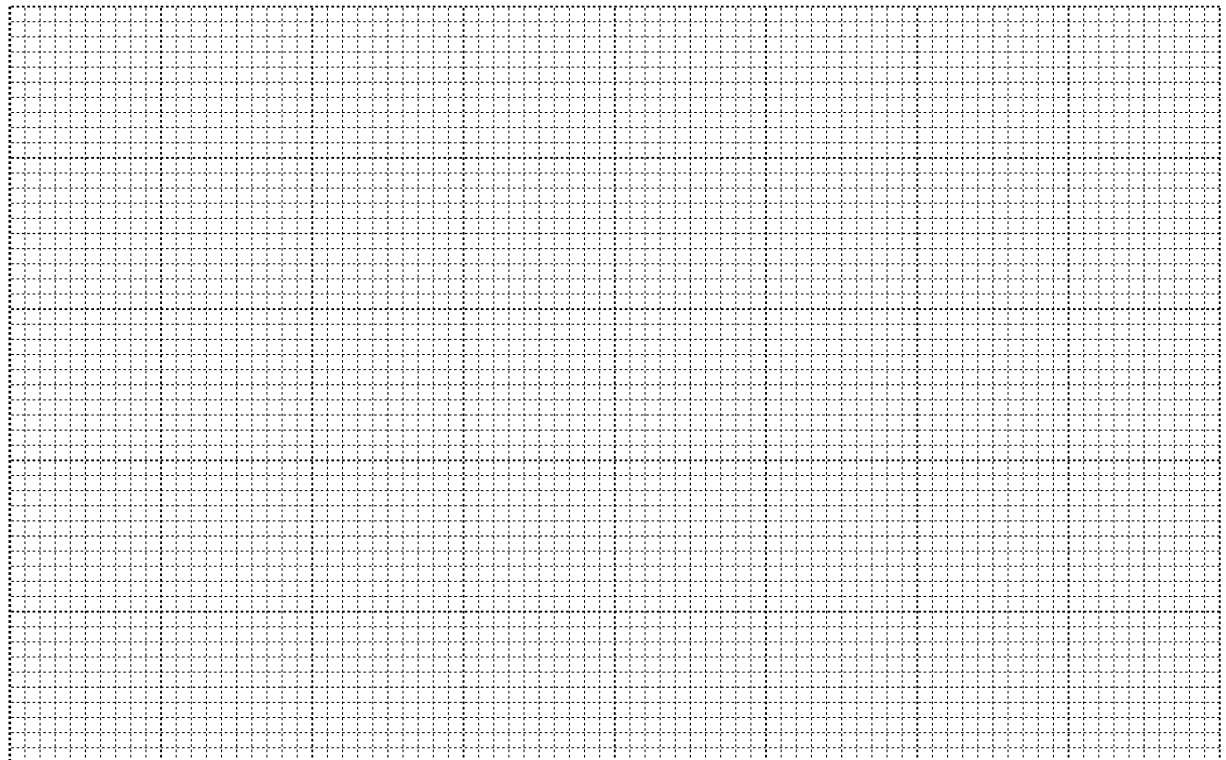
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You are given that the median salary of the males is \$24 000, the lower quartile is \$22 600 and the upper quartile is \$25 300.

- (b) Draw a pair of box-and-whisker plots in a single diagram on the grid below to represent the data. [3]



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(c) You are given that $E(X) = 3$.

Find $\text{Var}(X)$. [2]

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- (c) Find the probability that daily sales at this petrol station exceed 8000 litres on fewer than 2 of 6 randomly chosen days. [3]

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(b) Find $P(X \cap Y)$ and hence determine whether or not events X and Y are independent. [3]

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(c) Find the probability that two balls are numbered 2, given that exactly two of the selected balls have the same number. [2]

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