

Statistics GCSE

Paper 1

Edexcel Foundation - 2025

Notier Tier

Variant 3

1ST0/1F


# Mark scheme

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Question	Mark Scheme	Mark
<b>1 (a)</b>	[1 mark] 24	<b>1</b>

Question	Mark Scheme	Mark
<b>1 (b)</b>	[1 mark] 54	<b>1</b>

Question	Mark Scheme	Mark
<b>1</b>	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <span style="border-right: 1px solid black; padding-right: 10px;">Thursday</span>  </div>	<b>1</b>

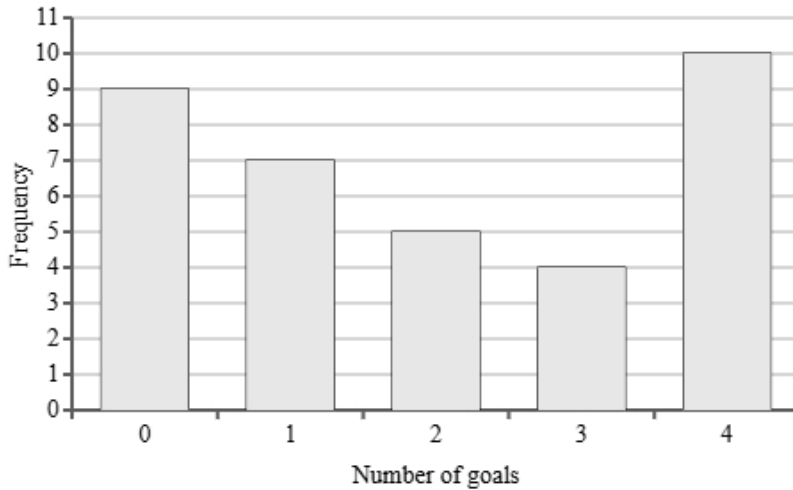
Question	Mark Scheme	Mark
<b>1 (c)</b>	[1 mark] Demonstrate an understanding that it is hard to use the key.	<b>1</b>

**Question 1 (c) model answer**

Tuesday shows 8 loaves of bread. This would be very difficult to show because 8 has a remainder 3 when divided by 5.

Question	Mark Scheme	Mark
<b>1 (d)</b>	[1 mark] bar of height 4	<b>1</b>

**Question 1 (d) model answer**



Question	Mark Scheme	Mark
<b>2 (a)</b>	4	<b>1</b>

Question	Mark Scheme	Mark
<b>2 (b)</b>	[1 mark] Correct comment on the validity of the conclusion.	<b>1</b>

**Question 2 (b) model answer**

More students scored one or less goals.

Question	Mark Scheme	Mark
<b>2 (c)</b>	Two reasons from: + easier + cheaper + quicker + less data to handle  Allow the converse, if census is mentioned.	<b>2</b>

**Question 2 (c) model answer**

A sample is cheaper.

A sample is quicker.

Question	Mark Scheme	Mark
<b>3 (a)</b>	[1 mark] Identification of what a sampling frame is.	<b>1</b>

**Question 3 (a) model answer**

A list of all the members in the population.

Question	Mark Scheme	Mark
<b>3 (b)</b>	[1 mark] Identification of a problem of the sampling frame.	<b>1</b>

**Question 3 (b) model answer**

The staff will not be included.

Question	Mark Scheme	Mark
<b>3 (c)</b>	[1 mark] for each from the following (maximum 2 marks): + A pilot survey will help identify problems. + A pilot survey will give an idea of what the results may be. + A pilot survey will test questions are understood/clear. + A pilot survey will give an idea of response rate. + A pilot survey will test questions are working as intended. + A pilot survey will check questions are inoffensive.	<b>2</b>

**Question 3 (c) model answer**

A pilot survey will test questions are working as intended.

A pilot survey will give an idea of response rate.

Question	Mark Scheme	Mark
<p><b>3 (d)</b></p>	<p><b>Sampling method</b></p> <p>[1 mark] for one of:</p> <ul style="list-style-type: none"> <li>+ random sample</li> <li>+ stratified sample</li> <li>+ systematic sample</li> </ul> <p>[1 mark] for an appropriate reason.</p> <p><b>Question</b></p> <p>[1 mark] for an appropriate question. This must be non-leading and closed with written options for response.</p> <p>[1 mark] for a reason, such as finds people's views, is non-leading or is closed.</p> <p><b>Statistical diagram</b></p> <p>[1 mark] for an appropriate diagram, such as bar chart, line chart, pictogram or pie chart.</p> <p>[1 mark] for a reason, such as it shows frequencies (or proportions for pie chart) or it allows comparisons.</p>	<p><b>6</b></p>

**Question 3 (d) model answer**

Jack should use systematic sampling. This will ensure that the sample is representative of the whole membership.

A question could be:

How satisfied are you with the current facilities?

Very Satisfied  Satisfied  Neutral  Unsatisfied  Very Unsatisfied

The question is clear and unbiased, avoiding leading students to a particular answer.

A pictogram can be used to display the data. This is because it shows frequencies and allows for visual comparisons.

Question	Mark Scheme	Mark
<b>3 (e)</b>	[1 mark] for a correct explanation.	<b>1</b>

**Question 3 (e) model answer**

It was collected by another researcher.

Question	Mark Scheme	Mark
<b>4 (a)</b>	<p>[1 mark] for an advantage from:</p> <ul style="list-style-type: none"> <li>+ It is cheaper to collect</li> <li>+ It is easily to access a large amount of data</li> <li>+ Historical data is easy to access</li> <li>+ It is convenient and easy/quicker to collect/access.</li> </ul> <p>[1 mark] for an disadvantage from:</p> <ul style="list-style-type: none"> <li>+ Cannot control the quality of the data</li> <li>+ The data may not be in the correct format</li> <li>+ The data may be out of date</li> </ul>	<b>2</b>

**Question 4 (a) model answer**

Advantage

Historical data is easy to access.

Disadvantage

The data may be out of date.

Question	Mark Scheme	Mark
<b>4 (b)</b>	[1 mark] for a correct description	<b>1</b>

**Question 4 (b) model answer**

Each individual in the population has an equal chance of being chosen.

Question	Mark Scheme	Mark
<b>5 (a)</b>	[1 mark] attempt to add numbers and divide by 8 [1 mark] 50 hours	<b>2</b>

Question	Mark Scheme	Mark
<b>5 (b)</b>	[1 mark] 82	<b>1</b>

Question	Mark Scheme	Mark
<b>5 (c)</b>	[1 mark] Correct outlier of 120 [1 mark] Correct explanation	<b>2</b>

**Question 5 (c) model answer**

The value is far higher than the other pieces of data.

Question	Mark Scheme	Mark
<b>5 (d)</b>	[1 mark] The mean is lower. [1 mark] Correct explanation.	<b>2</b>

**Question 5 (d) model answer**

The mean is less. This is because the value that James removed is higher than all the other values.

Question	Mark Scheme	Mark
<b>5 (e)</b>	[1 mark] for each correct description (maximum two)	<b>2</b>

**Question 5 (e) model answer**

Small sample size.

Does not include all of the data.

Question	Mark Scheme	Mark
<b>5 (f)</b>	[1 mark] Correct reason.	<b>1</b>

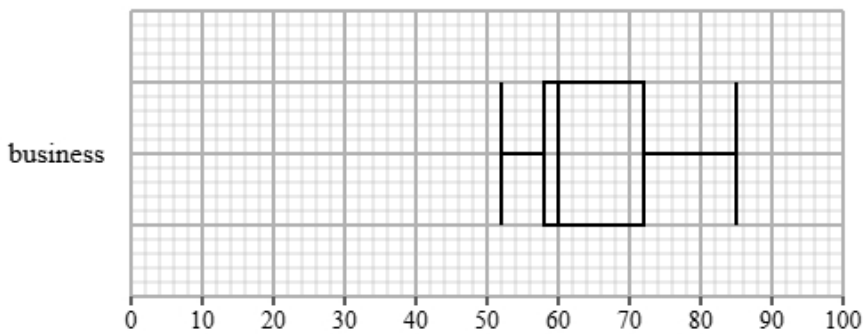
**Question 5 (f) model answer**

'Level 4+' has the largest sector.

Question	Mark Scheme	Mark
<b>6 (a)</b>	<p>[1 mark] Finding angle of 'Level 4+' is <math>122^\circ</math></p> $\frac{122}{360} \times 60$ <p>[1 mark] 20 million</p>	<b>2</b>

Question	Mark Scheme	Mark
<b>6 (b)</b>	<p>[1 mark] A box with two whiskers drawn with at least 3 correct values</p> <p>[1 mark] Fully correct</p>	<b>2</b>

**Question 6 (b) model answer**



Question	Mark Scheme	Mark
<b>7 (a)</b>	[1 mark] Correct comparison of the medians [1 mark] Correct comparison of the IQR/range [1 mark] Correct comparison of the skews [1 mark] Correct contextual interpretation comparing medians or IQR/ranges or skew	<b>4</b>

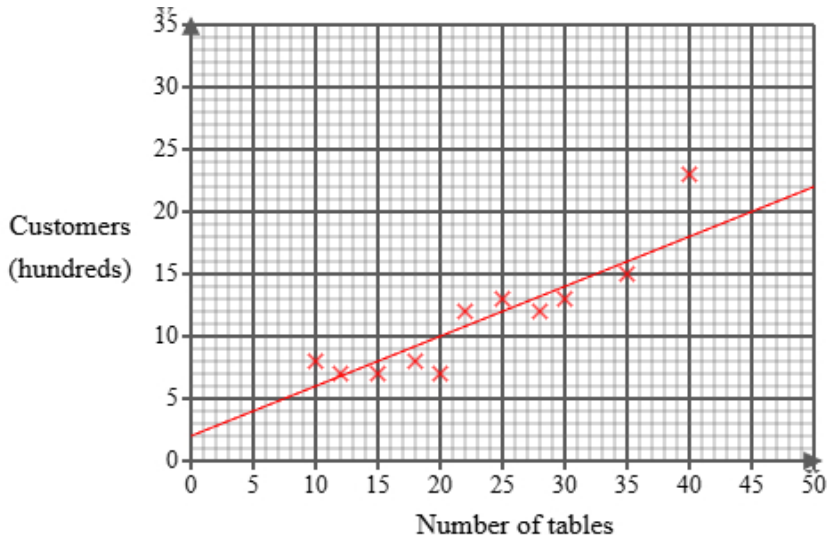
**Question 7 (a) model answer**

The median marks for physics students is greater than business students. The IQR for the marks of the physics students is greater than business students. The skew for the marks of the physics students is symmetrical and the skew for the business students is positive. The physics students are on average did better on the statistics test than the business students.

Question	Mark Scheme	Mark
<b>7 (b)</b>	[1 mark] for 1200 customers	<b>1</b>

Question	Mark Scheme	Mark
<b>8 (a)</b>	[1 mark] correct line of best fit drawn.	<b>1</b>

**Question 8 (a) model answer**



Question	Mark Scheme	Mark
<b>8 (b)</b>	[1 mark] positive [1 mark] strong [1 mark] As the tables increases the number of customers increases.	<b>3</b>

Question	Mark Scheme	Mark
<b>8 (c)</b>	[1 mark] for not appropriate [1 mark] for a reason	<b>2</b>

**Question 8 (c) model answer**

This is not appropriate because the point is outside the range of the data.

Question	Mark Scheme	Mark
<b>8 (d)</b>	[1 mark] for each reason (maximum 2 marks)	<b>2</b>

**Question 8 (d) model answer**

Grouped data can help to spot patterns in the data.

Grouped data is easier to read.

Question	Mark Scheme	Mark
<b>9 (a)</b>	[1 mark] for a reason	<b>1</b>

**Question 9 (a) model answer**

Grouped data does not show the maximum and minimum values.

Question	Mark Scheme	Mark
<b>9 (b)</b>	[2 marks] for a conclusion and two reasons. <i>or</i> [1 mark] for a reason and conclusion, or two reasons with no conclusion.	<b>2</b>

**Question 9 (b) model answer**

In Table A, there are no households in two of the groups, so these groups are not needed. In Table B, each group has a smaller class width, showing more detail. Emma's claim is justified.

Question	Mark Scheme	Mark
<b>9 (c)</b>	[1 mark] for $\sum fp = 18520$ [1 mark] for $\frac{\sum fp}{250} = \frac{18520}{250} = (74.08)$ [1 mark] for 74.1	<b>3</b>

Question	Mark Scheme	Mark
<b>9 (d)</b>	[1 mark] for a correct description which must include both events	<b>1</b>

**Question 9 (d) model answer**

The number of cars sold in a dealership **and** are priced above £30,000

Question	Mark Scheme	Mark
<b>10 (a)</b>	<p>[1 mark] for <math>P(B) = \frac{19}{40}</math></p> <p>[1 mark] for use of conditional probability to find <math>P(B A)</math></p> <p>[1 mark] for <math>P(B A) = \frac{5}{17}</math></p> <p><b>Explanation</b></p> <p>[1 mark] for <math>\frac{19}{40} \neq \frac{5}{17}</math></p> <p>[1 mark] for correct conclusion based on their answers</p>	<b>5</b>

**Question 10 (a) model answer**

$$\text{amount in B} = 5 + 14$$

$$= 19$$

$$\text{total amount} = 40$$

$$P(B) = \frac{\text{amount in B}}{\text{total amount}}$$

$$P(B) = \frac{19}{40}$$

$$P(B | A) = \frac{P(A \text{ and } B)}{P(A)}$$

$$P(B | A) = \frac{\frac{5}{40}}{\frac{17}{40}}$$

$$P(B | A) = \frac{5}{17}$$

$\frac{19}{40} \neq \frac{5}{17}$  so A and B are not independent

Question	Mark Scheme	Mark
<b>10 (b)</b>	[1 mark] 4.1% to 6.0% increase	<b>1</b>

Question	Mark Scheme	Mark
<b>11 (a)</b>	[1 mark] 1	<b>1</b>

Question	Mark Scheme	Mark
<b>11 (b)</b>	[1 mark] Explanation that shows an understanding that we have percentages not numbers.	<b>1</b>

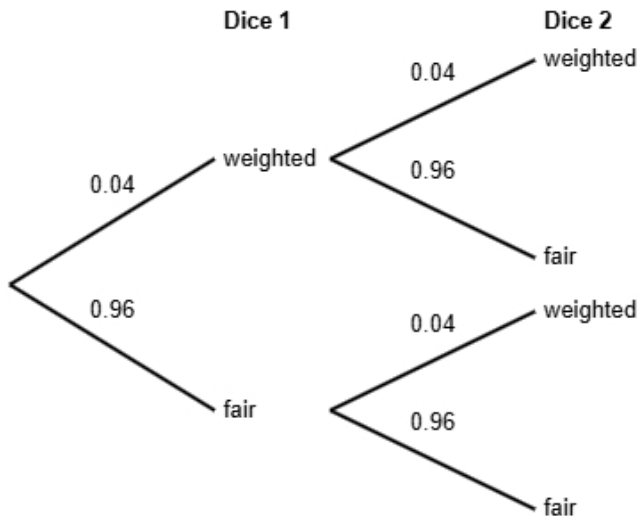
**Question 11 (b) model answer**

The map does not show the increases and decreases as amounts.

Question	Mark Scheme	Mark
<b>11 (c)</b>	[1 mark] choropleth (map)	<b>1</b>

Question	Mark Scheme	Mark
<b>11 (d)</b>	[1 mark] 0.96 in correct position for Dice 1. [1 mark] 0.04, 0.96, 0.04 and 0.96 in correct positions for Dice 2.	<b>2</b>

**Question 11 (d) model answer**



Question	Mark Scheme	Mark
<b>12 (a)</b>	[1 mark] 0.9216	<b>2</b>

Question	Mark Scheme	Mark
<b>12 (b)</b>	<p>[1 mark] for one correct product using their '0.96' or subtracting a not-wanted product from 1</p> <p>[1 mark] for 0.0768 or 7.68%</p> <p>[1 mark] for 'correct' ft probability and conclusion based on their probability</p>	<b>3</b>

**Question 12 (b) model answer**

$$\begin{aligned}
 P(\text{weighted AND fair}) &= 0.04 \times 0.96 \\
 &= 0.0384
 \end{aligned}$$

$$\begin{aligned}
 P(\text{exactly one dice is weighted}) &= 0.0384 \times 2 \\
 &= 0.0768
 \end{aligned}$$

$$0.0768 = 7.68\%$$

$$7.68\% < 8\%$$

The probability that exactly one dice is weighted is less than 8%, so Jack is correct.

Question	Mark Scheme	Mark
<b>12 (c)</b>	<p>[1 mark] for correct comment on the type of data, such as discrete, whole numbers, integers, etc.</p>	<b>1</b>

**Question 12 (c) model answer**

Because number of power outages recorded in a small town is discrete.

Question	Mark Scheme	Mark
<b>13 (a)</b>	[1 mark] 2	<b>1</b>

Question	Mark Scheme	Mark
<b>13 (b)</b>	<p><b>Part i</b> [1 mark] 0</p> <p><b>Part ii</b> [1 mark] Subtracts 25 from 50. [1 mark] 25</p>	<b>3</b>

Question	Mark Scheme	Mark
<b>13 (c)</b>	[1 mark] 6	<b>1</b>

Question	Mark Scheme	Mark
<b>13 (d)</b>	[1 mark] for a correct reason	<b>1</b>

**Question 13 (d) model answer**

The range is 6, so the IQR must be less than 6.