

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number

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Candidate Number

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Time 1 hour 30 minutes

**Paper
reference**

1ST0/2F

Statistics
PAPER 2
Foundation Tier

You must have:

Ruler graduated in centimetres and millimetres, protractor,
pair of compasses, pen, HB pencil, eraser, scientific calculator.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Scientific calculators may be used.
- You must **show all your working out** with **your answer clearly identified** at the **end of your solution**.



Information

- The total mark for this paper is 80
- 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.
- Good luck with your examination.

Turn over ►

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Pearson

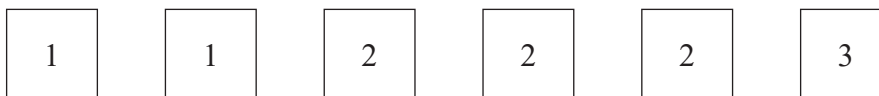
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Marisa has 6 tiles. Each tile has a number on it.

Here are Marisa's tiles.



Marisa puts her tiles in a bag.

Marisa takes at random a tile from the bag.

(a) Underline the word from the list below that best describes the likelihood that the tile has a 2 on it.

impossible certain evens unlikely likely

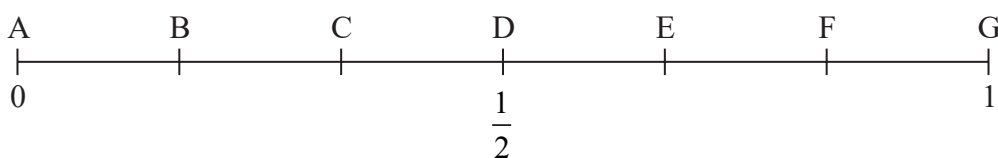
(1)

(b) Underline the word from the list below that best describes the likelihood that the tile has a number on it.

impossible certain evens unlikely likely

(1)

The probability scale below shows some probabilities marked with letters.



(c) Write down the letter that shows the probability that the tile taken from the bag

(i) has a 3 on it,

.....
(1)

(ii) has a 1 or a 2 on it.

.....
(1)

(Total for Question 1 is 4 marks)



- 2 An activity centre sells Adult tickets and Child tickets.
A ticket can be a Day pass or a Weekend pass.

The incomplete two-way table gives some information about the number of each type of ticket sold last Saturday.

	Day pass	Weekend pass	Total
Adult ticket	30		67
Child ticket		21	
Total			120

- (a) Complete the two-way table.

(3)

One of the people at the activity centre last Saturday with an Adult ticket is selected at random.

- (b) Write down the probability that their ticket is a Day pass.

.....
(1)

- (c) Compare the number of Day passes sold and the number of Weekend passes sold.
You should make two comparisons.

1.....

2.....

.....
(2)

(Total for Question 2 is 6 marks)



This question must be answered with a cross in a box . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

- 3 The manager of an art shop wants to find out about the shopping habits of customers in his shop.

He wants to find out how many customers leave the shop without buying anything.

For the next four weeks he plans to record how many customers leave the shop without buying anything each Monday.

- (a) Give one problem with the manager's plan for data collection.

(1)

The manager asks his staff to record the number of people served at the till each hour.

- (b) 'Number of people served' is an example of which type of data?

Continuous Discrete Bivariate Categorical

(1)

The staff record the number of people served per hour.

Here is the completed table.

Time	Number of customers
09:00–10:00	8
10:01–11:00	about 10
12:01–13:00	13
13:01–15:00	14
15:01–16:00	7

- (c) Identify two problems with this completed table.

1.....

.....

2.....

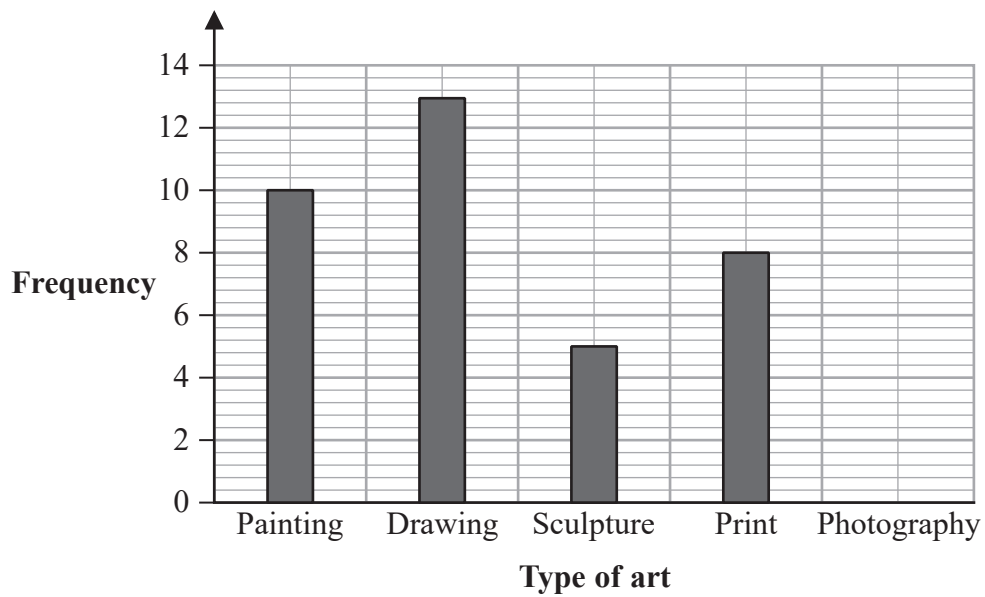
.....

(2)



The manager also collected data on the type of art that his customers produce.

The incomplete bar chart shows information about the type of art produced by some of his customers.



Photography is the type of art produced by 11 customers.

(d) Complete the bar chart.

(1)

(e) Which type of art is produced by half as many customers as those who produce paintings?

.....
(1)

(Total for Question 3 is 6 marks)



4 Shona and Luke are investigating housing.

Shona wants to find out about the types of house in which people live. She plans to collect data by asking people to tell her in which type of house they each live.

- (a) Complete the sentence with an appropriate statistical word.

Shona is collecting the data herself and so this is data. (1)

- (b) Design a data collection sheet for Shona to use.

(2)

Luke has collected data about the number of people living in each of the 12 houses in his street.

Here is his data.

2 2 3 3 3 4 4 4 4 5 5 11

Luke wants to work out the average of the number of people living in each house in his street.

- (c) Which average, mean or median, would it be more appropriate for Luke to use? Give a reason for your answer.

(2)



There is one outlier in the data.

- (d) Excluding the outlier, work out the range of the number of people living in the houses in the street.

.....
(2)

Shona has collected data about the number of people living in each of the houses in her street.

She has collected data for 2014 and for 2019

The table gives the range of the number of people living in the houses in Shona's street in 2014 and in 2019

Year	2014	2019
Range	7	5

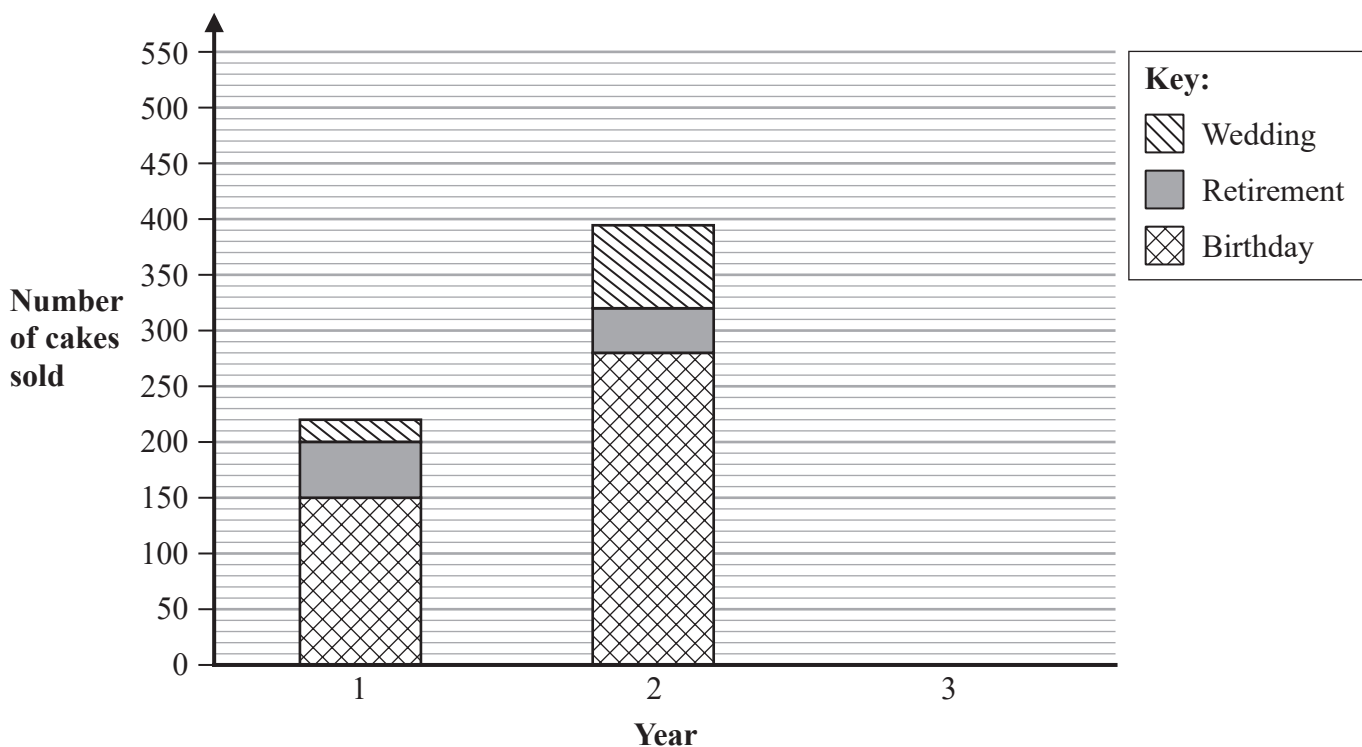
- (e) Compare the range for 2014 with the range for 2019 and interpret your comparison in context.

.....
.....
.....
.....
.....
(2)

(Total for Question 4 is 9 marks)



5 A bakery records the numbers of cakes of different types sold over a three year period.
 The composite bar charts show information about the cakes sold in Year 1 and in Year 2



In Year 3 the bakery sold 350 birthday cakes, 30 retirement cakes and 90 wedding cakes.

(a) On the grid, use this information to complete the composite bar chart for Year 3 (2)

(b) How many retirement cakes were sold in Year 2?

..... (2)

(c) Describe how the numbers of retirement cakes sold changed over the three years.

..... (1)

(Total for Question 5 is 5 marks)

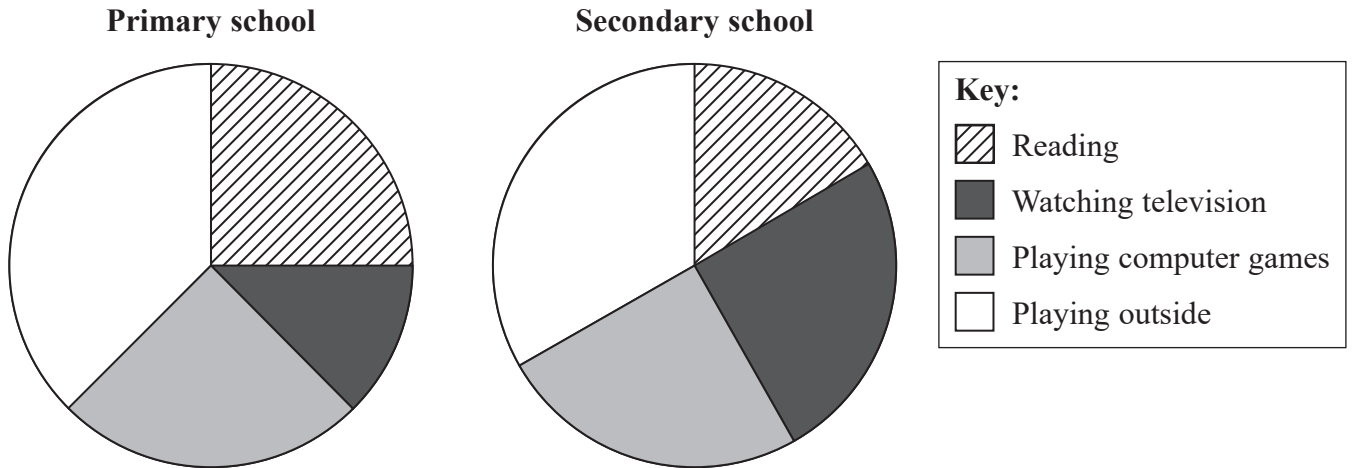


6 Simas is investigating what students like to do in their spare time.

He collected data by asking the students at a primary school and at a secondary school what they like to do in their spare time.

Simas asked each student at the two schools which of reading, watching television, playing computer games or playing outside they like best to do in their spare time.

The pie charts show information about the students' answers.



(a) What does the pie chart for the primary school students show about what they like best to do in their spare time?

Give one conclusion.

(1)

(b) Compare what primary school students like best to do in their spare time with what the secondary school students like best to do in their spare time.

Give two comparisons.

1

2

(2)

(Total for Question 6 is 3 marks)



7 Ruth is investigating the results of the Six Nations rugby competition.

She finds the following summary information for the Six Nations rugby competition in 2018 and in 2019

2018

Final position	Team	Matches won	Matches drawn	Matches lost	Points scored for	Points scored against
1	Ireland	5	0	0	160	82
2	Wales	3	0	2	119	83
3	Scotland	3	0	2	101	128
4	France	2	0	3	108	94
5	England	2	0	3	102	92
6	Italy	0	0	5	92	203

2019

Final position	Team	Matches won	Matches drawn	Matches lost	Points scored for	Points scored against
1	Wales	5	0	0	114	65
2	England	3	1	1	184	101
3	Ireland	3	0	2	101	100
4	France	2	0	3	93	118
5	Scotland	1	1	3	105	125
6	Italy	0	0	5	79	167

(Source: www.sixnationsrugby.com)

(a) In 2018, which two teams had fewer 'points scored for' than 'points scored against'?

..... and
(1)

Two teams finished in the same final position in 2019 as they had finished in 2018

(b) Write down the names of these two teams.

..... and
(1)



(c) Which team won 2 matches in 2018 and 3 matches in 2019?

.....
(1)

Ruth concludes that in 2018 and in 2019 Wales had a more successful rugby team than Scotland.

(d) Does the information in the tables support her conclusion?
Give a reason for your answer.

.....
.....
.....
(2)

Ruth found from a newspaper the age of each player from the England team for a 2019 Six Nations rugby match.

Here are the ages.

20	24	25	25	26	26	26	27
27	28	28	28	28	29	29	

(Source: *www.irishtimes.com*)

(e) Find the mode of the ages.

.....
(1)

Ruth plans to use a stem and leaf diagram to represent the ages.

(f) Discuss whether or not a stem and leaf diagram would be an appropriate diagram to use.

.....
.....
.....
(2)

(Total for Question 7 is 8 marks)



- 8 Diana is investigating the numbers of wolf pups in wolf dens and the numbers of fox pups in fox dens.

She collected data from the internet.

Data collected from the internet is an example of secondary data.

- (a) Explain why data collected from the internet is an example of secondary data.

(1)

Diana finds data on the number of wolf pups observed in a random sample of 16 wolf dens.

Here is the data.

3 3 4 4 5 5 5 5
5 6 6 7 7 8 8 9

(Source: *college.cengage.com*)

Diana also collects data on the number of fox pups in each den of a random sample of fox dens.

Here is information about the numbers of fox pups in the fox dens.

	Median	Interquartile range
Fox pups	3	2

(Source: *foxsurvey.ucdavis.edu*)



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- (b) (i) Compare the distribution of the numbers of wolf pups in the wolf dens and the distribution of the numbers of fox pups in the fox dens.
Justify your comparisons and interpret one of them in the context of the numbers of pups.

.....

.....

.....

.....

.....

(6)

- (ii) Explain how the use of secondary data affects the reliability of your conclusions in part (b)(i).

.....

.....

.....

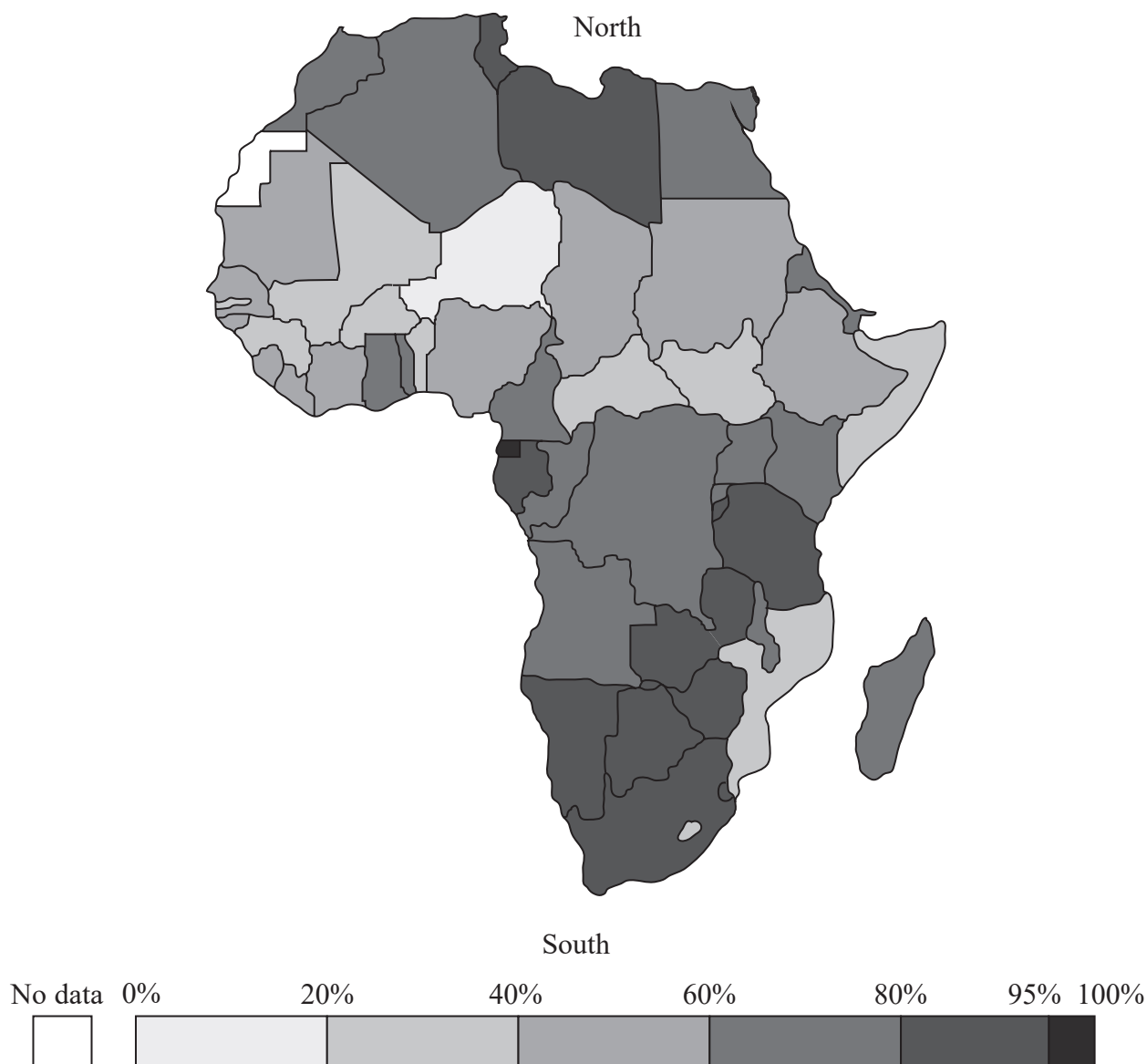
(1)

(Total for Question 8 is 8 marks)



11 Tim is writing an article for university lecturers on literacy rates in Africa.

He uses the following choropleth map to display the literacy rates in the countries of mainland Africa and Madagascar.



(Source: *ourworldindata.org*)

(a) Discuss whether or not this is a suitable diagram to use for the readers of his article.

(1)



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In his article, Tim concludes that the south of Africa has higher literacy rates than other parts of Africa.

- (b) Does the choropleth map support this conclusion?
Give statistical reasons for your answer.

.....

.....

.....

.....

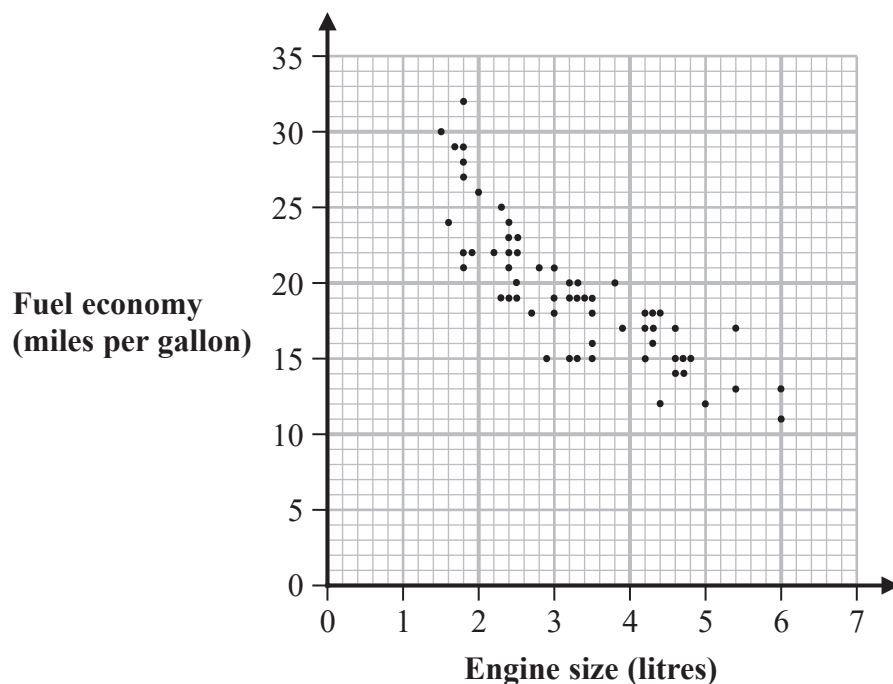
(3)

(Total for Question 11 is 4 marks)



12 Rachel collects data on the engine size (in litres) and the fuel economy during city driving (in miles per gallon) for each car in a sample of 61 cars of various types.

The scatter diagram was drawn for this information by statistical software.



(Source: *dasl.datadescription.com*)

(a) Describe and interpret the type of correlation shown by the scatter diagram.

.....

.....

.....

(2)



The statistical software worked out that the mean engine size for the 61 cars in the sample is 3.3 litres, correct to one decimal place.

The statistical software worked out that the total of the fuel economies for the 61 cars in the sample is 1183

(b) On the scatter diagram,

(i) plot with a cross (×) the double mean point (\bar{x} , \bar{y}) of the data,

(2)

(ii) draw a line of best fit through the double mean point.

(1)

Rachel wants to predict the fuel economy of a car with an engine size of 7 litres.

(c) Explain why it is not appropriate to use the line of best fit on this scatter diagram to find this prediction.

(1)

(Total for Question 12 is 6 marks)



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(Total for Question 13 is 5 marks)



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14 A firm produces pottery.

The firm produces 1000 plates each week.

The manager of the firm wants to take a systematic sample of 5% of the plates to check for faults.

(a) Describe how the manager should take this sample.

(2)

(b) Give one disadvantage of using systematic sampling.

(1)

The manager also collects information about the orders that the firm has received.

The grouped frequency table gives a summary of the costs of the 80 orders received last week.

Cost (£ c)	Frequency
$0 < c \leq 50$	15
$50 < c \leq 100$	18
$100 < c \leq 150$	20
$150 < c \leq 200$	19
$200 < c \leq 250$	3
$250 < c \leq 300$	5



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(c) (i) Write down the class interval which contains the median cost.

.....
(1)

(ii) Use linear interpolation to work out an estimate of the median cost.

£
(2)

(Total for Question 14 is 6 marks)

TOTAL FOR PAPER IS 80 MARKS



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