Write your name here

Surname	Other names

Pearson Edexcel GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Statistics

Paper 1F

Foundation Tier

Monday 23 June 2014 – Afternoon
Time: 1 hour 30 minutes

Paper Reference
5ST1F/01

You must have:
Ruler graduated in centimetres and millimetres, protractor, pen, HB pencil, eraser, electronic 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.*

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.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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PEARSON

Foundation Tier Formulae

You must not write on this page.
Anything you write on this page will gain NO credit.

Mean of a frequency distribution $= \dfrac{\sum fx}{\sum f}$

Mean of a grouped frequency distribution $= \dfrac{\sum fx}{\sum f}$, where x is the mid-interval value.

Answer ALL the questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 The table shows information about the numbers of medals won by competitors of 10 countries in the 2012 Paralympic Games.

Country	Gold	Silver	Bronze	Total
China	95	71	65	231
Russia	36	38	28	102
Great Britain	34	43	43	120
Ukraine	32	24	28	84
Australia	32	23	30	85
USA	31	29	38	98
Brazil	21	14	8	43
Germany	18	26	22	66
Poland	14	13	9	36
Netherlands	10	10	19	39

(Data source: www.london2012.com)

(a) Write down the name of the country that won the **least** number of bronze medals.

.....

(1)

One country won twice as many gold medals as Germany.

(b) Write down the name of this country.

.....

(1)

(c) Compare the numbers of medals won by Poland with the numbers of medals won by Netherlands.

.....

.....

.....

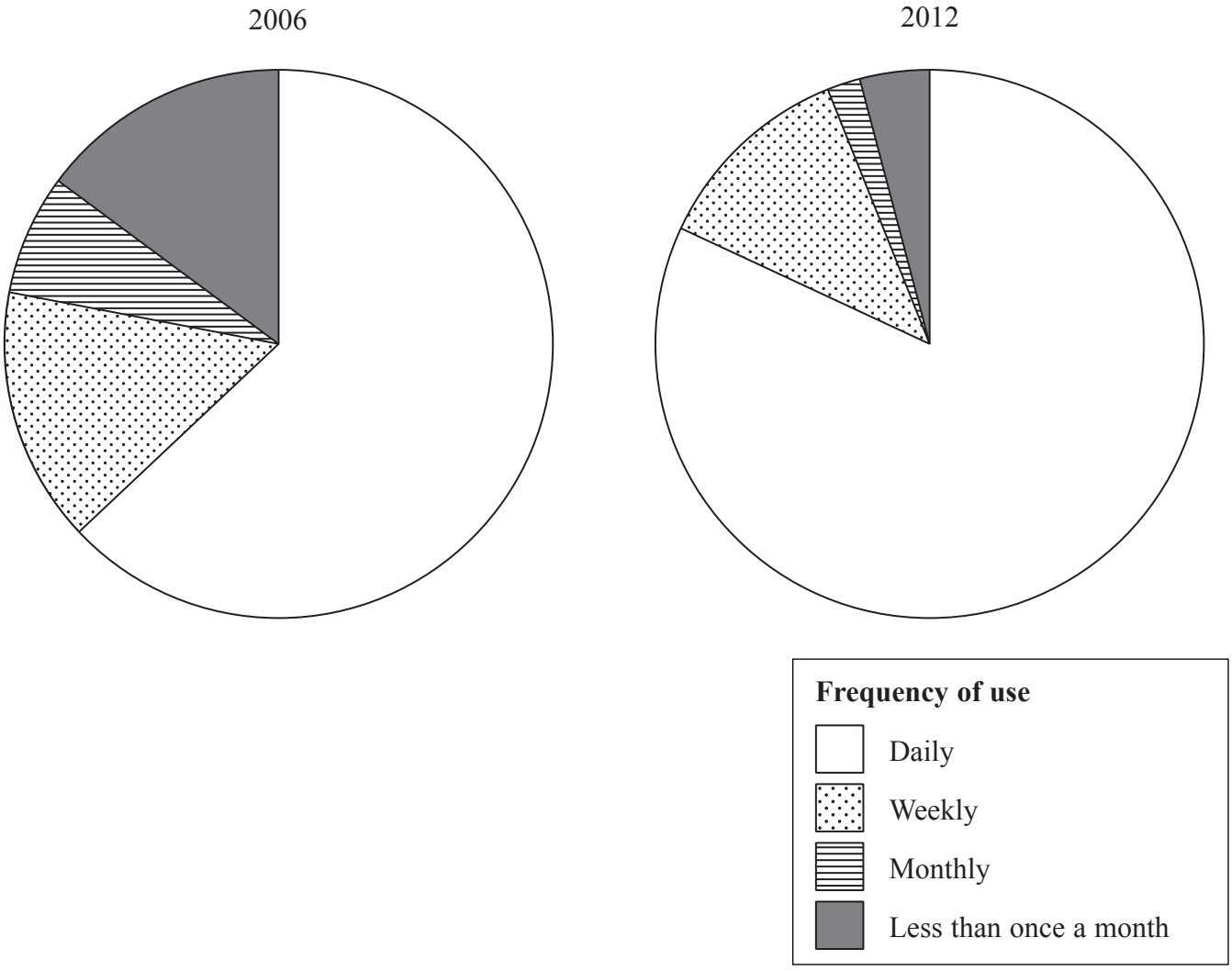
(2)

(Total for Question 1 is 4 marks)

2 In 2006 and 2012, some 16–24 year olds in the UK were asked how often they use a computer.

The pie charts show the proportion of each frequency of computer use for the years 2006 and 2012

Frequency of computer use for 16–24 year olds in the UK



(Data source: Office for National Statistics)

(a) Write down the most common frequency of use in both 2006 and 2012

.....

(1)

In 2006, the proportions of 16–24 year olds were the same for two frequencies of use.

(b) Write down these two frequencies of use.

..... and .....

(1)

Andrew claims that 16–24 year olds in the UK used a computer more frequently in 2012 than in 2006

(c) Explain whether or not the pie charts support his claim.

.....

.....

.....

.....

(2)

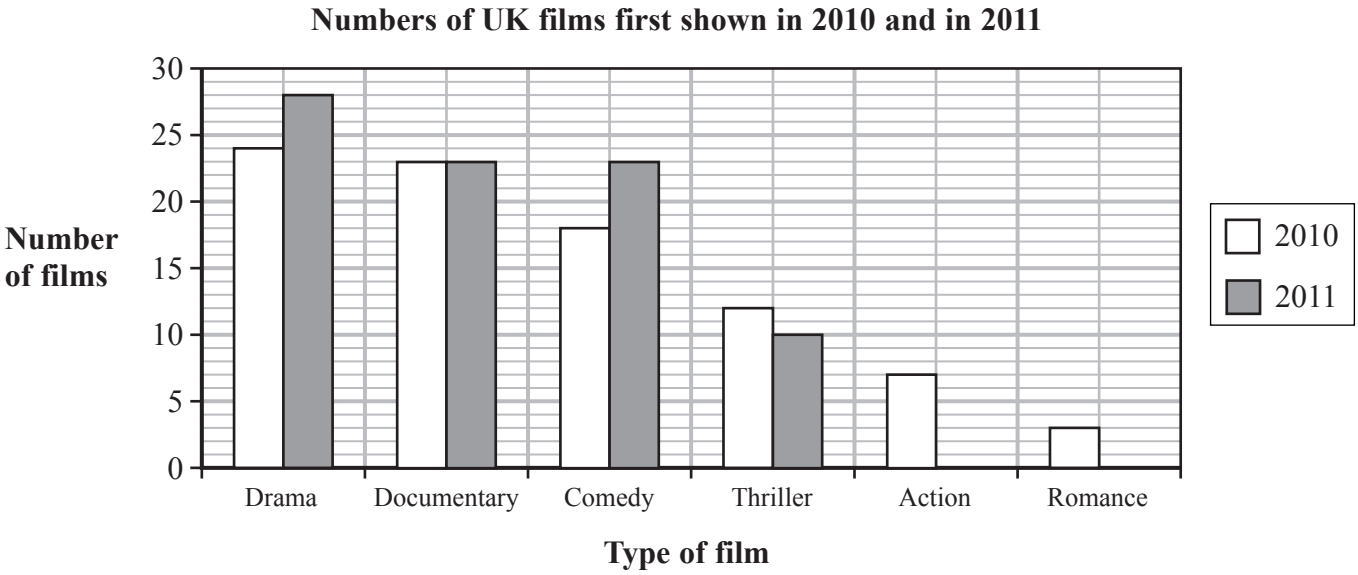
(Total for Question 2 is 4 marks)

3 The table shows information about the numbers of UK films first shown in 2010 and in 2011 for each type of film.

Type of film	2010	2011
Drama	24	28
Documentary	23	23
Comedy	18	23
Thriller	12	10
Action	7	8
Romance	3	9

(Data source: 2012 BFI Statistical Yearbook)

The incomplete multiple bar chart shows some of this information.



(a) Complete the multiple bar chart for Action and Romance films in 2011

(2)

(b) Work out the total number of Drama films first shown in 2010 and in 2011

.....

(1)

For one type of film, fewer UK films were first shown in 2011 than in 2010

(c) Write down the name of this type of film.

.....

(1)

Here is a list of statistical words.

discrete **qualitative** **grouped** **continuous** **quantitative**

(d) Use one of these words to best complete the statement below.

Type of film is ..... data.

(1)

Joseph says

"Drama films are the most popular type of UK film."

(e) What additional data could Joseph collect to support this?

.....

.....

.....

(1)

(Total for Question 3 is 6 marks)

4 Liam is investigating the ages and genders of visitors to a local museum.

His sample of data is all the visitors to the museum on a Tuesday morning.

The table gives information about these visitors.

	Under 18	**18–49**	**50 and above**	**Total**
Male	10	7	4	
Female	9		12	
Total		15		

(a) Complete the two-way table.

(2)

(b) Write down the total number of visitors to the museum on this Tuesday morning.

.....

(1)

(c) Which age group had the greatest number of visitors on this Tuesday morning?

.....

(1)

Liam's sample may be biased.

(d) Give two reasons why.

Reason 1 .....

.....

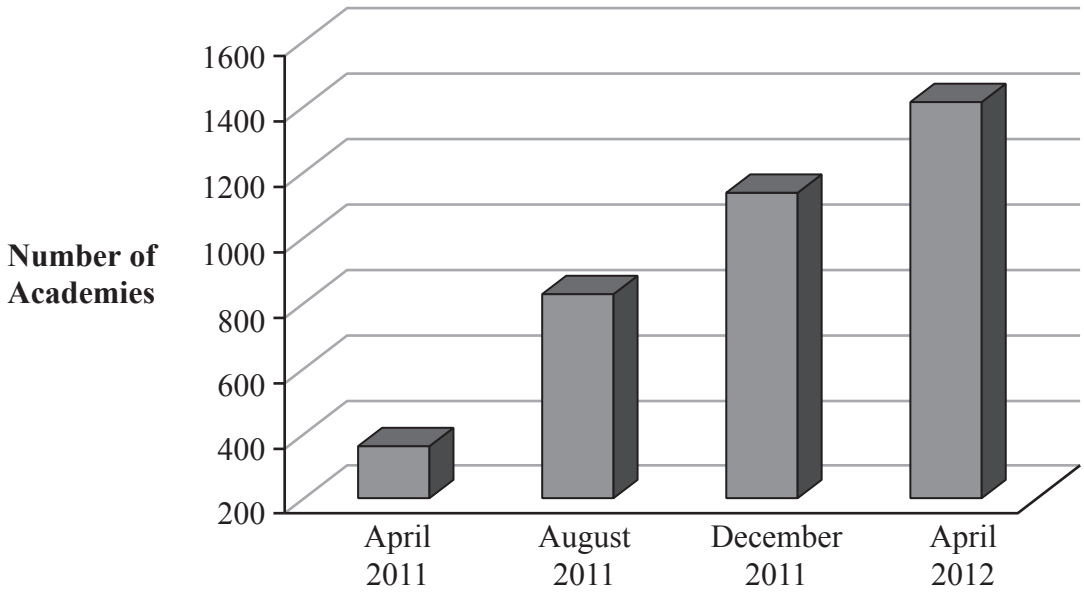
Reason 2 .....

.....

(2)

(Total for Question 4 is 6 marks)

5 The graph shows the number of secondary schools in the UK that became Academies between April 2011 and April 2012



(Data source: Department for Education)

Give **two** reasons why this graph may be seen as misleading.

.....

.....

.....

.....

(Total for Question 5 is 2 marks)

6 Sharon asked 9 friends how many text messages they each sent last weekend.

Here are her results.

31 20 18 19 23 18 28 14 72

(a) Work out the range.

.....

(2)

(b) Find the median.

.....

(2)

(c) Work out the mean.

.....

(2)

(d) Give one advantage of using the median to summarise these results.

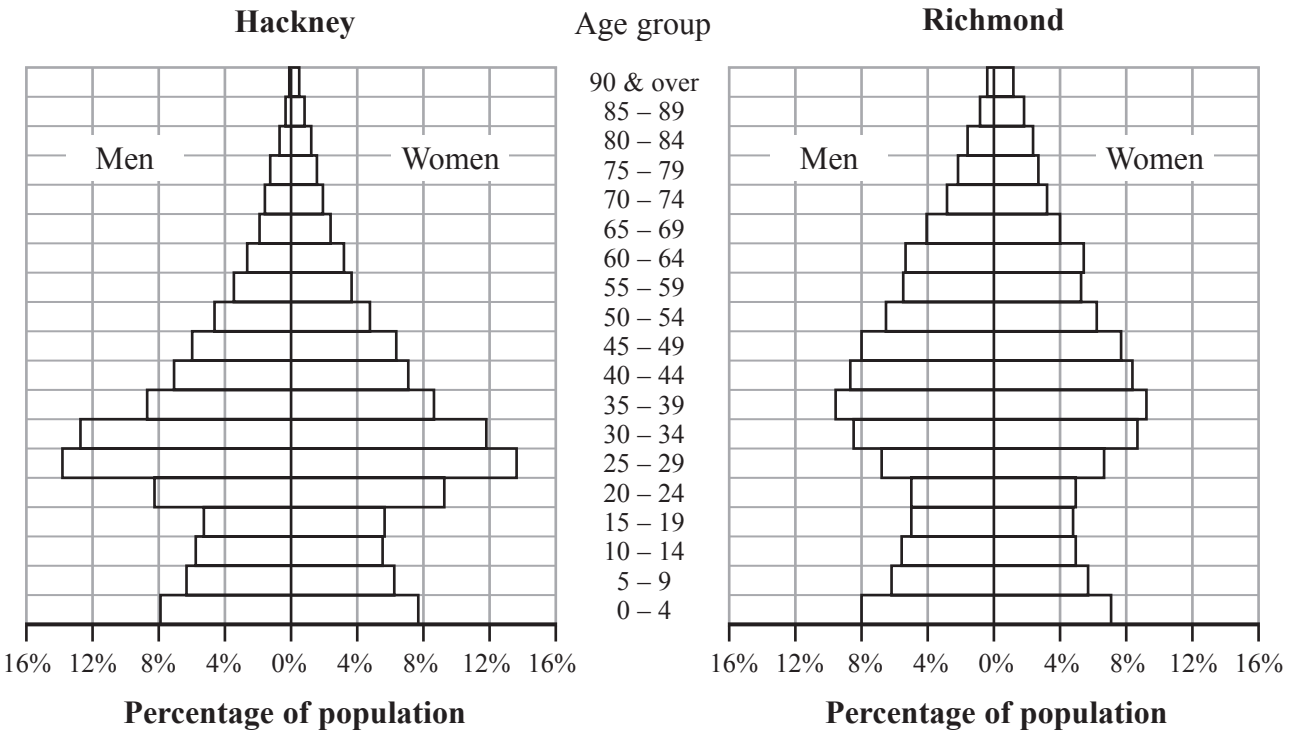
.....

.....

(1)

(Total for Question 6 is 7 marks)

7 The two population pyramids show the percentages of men and women in each age group in Hackney and in Richmond in 2011



(Data source: Office for National Statistics 2011 Census)

(a) Write down the age group that has the greatest percentages of both men and women for

(i) Hackney,

.....

(ii) Richmond.

.....

(2)

In Richmond, 4% of men and 4% of women are in the same age group.

(b) Write down this age group.

.....

(1)

(c) Compare the percentage of people aged 60 and over in Hackney with the percentage of people aged 60 and over in Richmond.

.....

.....

.....

(1)

(Total for Question 7 is 4 marks)

8 Amy owns a cycle shop.

She wants to find out information about cyclists in her town.

Amy plans to use primary data.

(a) Give **one** advantage of using primary data.

.....

.....

.....

(1)

The table shows some of the information that Amy wants to investigate.

(b) Complete the Type of data column in the table.

Use only the words **discrete** or **continuous**.

	Type of data
Time spent cycling	
Number of bikes	
Distance cycled	
Height of cyclist	

(2)

Amy asks 50 cyclists,

"What colour is your bike?"

(c) Design a data capture sheet for Amy to record this information.

(2)

Amy suggests using a stem and leaf diagram to represent this information.

*(d) Discuss whether or not this would be a suitable diagram to represent her data.

.....

.....

.....

.....

(2)

(Total for Question 8 is 7 marks)

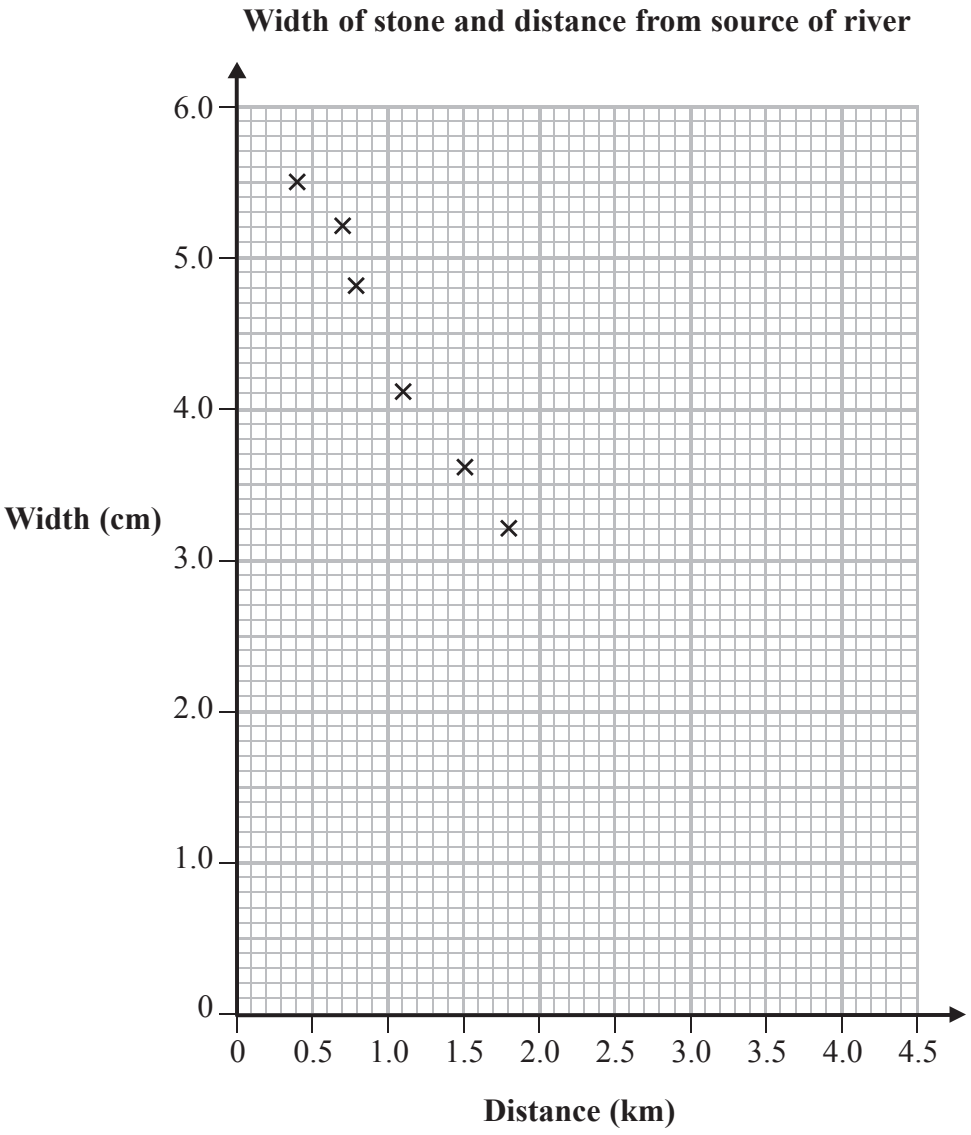
9 Nadia is investigating the width of stones in a river.

She collects stones at different distances from the source of the river.

The table gives information about her results.

Stone	A	B	C	D	E	F	G	H
Distance from source of river (km)	0.4	0.7	0.8	1.1	1.5	1.8	2.0	2.5
Width of stone (cm)	5.5	5.2	4.8	4.1	3.6	3.2	3.0	2.3

Some of this information is shown on the scatter diagram.



(a) Complete the scatter diagram by plotting the points for stones **G** and **H**.

(2)

(b) Describe and interpret the correlation.

.....

.....

.....

.....

.....

(2)

(c) Draw a line of best fit on the scatter diagram.

(1)

(d) Use your line of best fit to estimate the width of a stone at a distance of 1.3 km from the source of the river.

..... cm

(1)

Nadia wants to predict the width of a stone 3.2 km from the source of the river.

She uses the line of best fit to make this prediction.

This may not be reliable.

(e) Explain why.

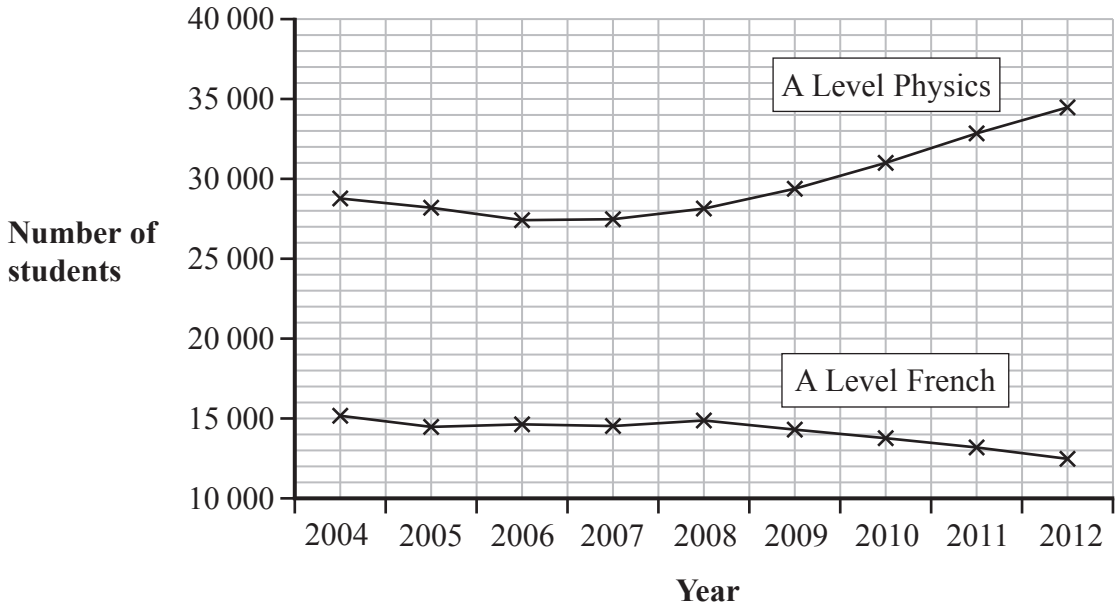
.....

.....

(1)

(Total for Question 9 is 7 marks)

10 The time series graphs show the numbers of students taking A Level Physics and A Level French in each of the years from 2004 to 2012



(Data source: JCQ)

(a) Write down an estimate for the number of students taking A Level French

(i) in 2008

.....

(ii) in 2012

.....

(2)

(b) Describe the trend in the number of students taking A Level Physics from 2007 to 2012

.....

.....

(1)

(c) Use the time series graphs to compare the numbers of students taking A Level Physics and A Level French.

.....

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.....

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(2)

(Total for Question 10 is 5 marks)

11 Julie and Bevan own a sandwich company.

They deliver sandwiches to customers for lunch in each of 30 offices every day.
There are a number of customers in each office.

Julie wants to make changes to the sandwich menu.
She decides to find out the opinions of the customers.

(a) Describe the population for the survey.

.....

.....

(1)

Bevan wants to use a census to collect the customers' opinions.

(b) Write down **one** advantage of using a census.

.....

.....

(1)

Julie wants to use a sample of the customers, rather than a census.

(c) Give **two** reasons why a sample might be better.

Reason 1 .....

.....

Reason 2 .....

.....

(2)

(d) Explain what is meant by a random sample.

.....

.....

.....

(1)

Julie designs a questionnaire to give to customers.

One question on Julie's questionnaire is

Do you agree that the sandwiches are good value for money?

This is **not** a good question.

(e) Give two reasons why.

Reason 1 .....

.....

.....

Reason 2 .....

.....

.....

(2)

Bevan wants to use face to face interviews with the customers.

(f) Give one advantage and one disadvantage of using face to face interviews rather than a questionnaire given to customers.

Advantage .....

.....

.....

Disadvantage .....

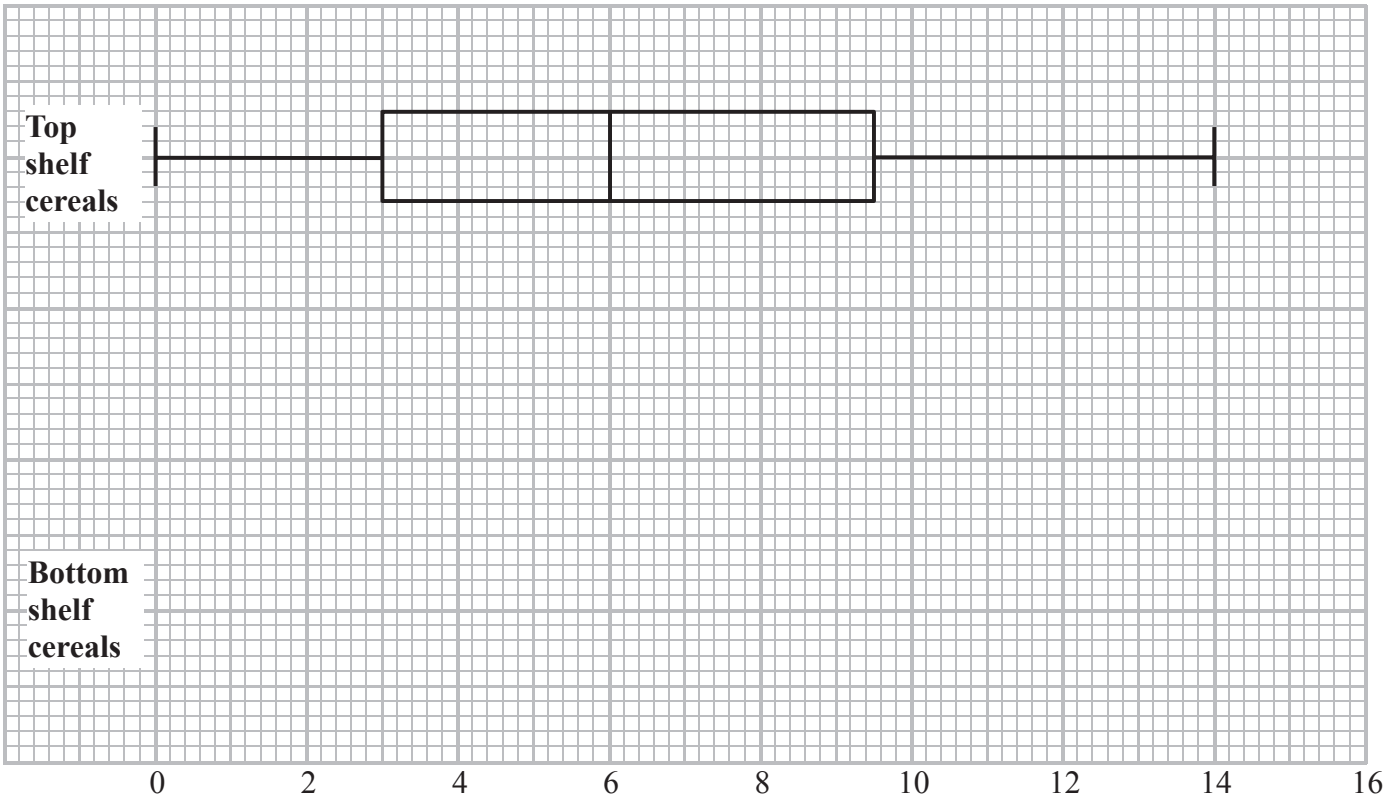
.....

.....

(2)

(Total for Question 11 is 9 marks)

12 The box plot shows information about the weight of sugar (in grams per serving) in each of the breakfast cereals on the top shelf in a supermarket.



(Data source: Healthy Breakfast Study Carnegie Mellon University)

(a) Work out the interquartile range for the weights of sugar in the top shelf breakfast cereals.

.....grams

(2)

The table gives some information about the weight of sugar (in grams per serving) in each of the breakfast cereals on the bottom shelf in the supermarket.

	Weight of sugar (grams per serving)
Lowest value	0
Lower quartile	2
Median	3
Upper quartile	10
Highest value	15

(b) On the grid above, construct a box plot to represent this information.

(3)

*(c) Discuss whether or not the distribution of weights of sugar for bottom shelf breakfast cereals is symmetrical.

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(2)

(Total for Question 12 is 7 marks)

13 Here is a list of probabilities.

$$0 \qquad \frac{1}{20} \qquad \frac{1}{2} \qquad \frac{3}{4} \qquad 1$$

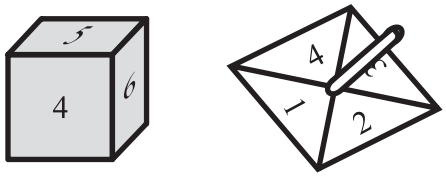
(a) Complete the table by matching each probability to its probability word.

Probability word	Probability
Impossible	
Certain	
Unlikely	
Evens	
Likely	

(2)

Benjamin rolls a fair 6-sided dice.

Benjamin then spins a fair 4-sided spinner.



He adds the score on the dice and the score on the spinner to get the total.

(b) Complete the sample space diagram to show all the possible **totals**.

		Score on spinner			
		1	**2**	**3**	**4**
Score on dice	**1**				
	2				
	3				
	4				
	5				
	6				

(2)

(c) Write down the probability that the total is 2

.....

(1)

Benjamin rolls the dice and spins the spinner.

Then Vanessa rolls the dice and spins the spinner.

(d) Work out the probability that both Benjamin and Vanessa each get a total of 3 or 4

.....

(3)

(Total for Question 13 is 8 marks)

Turn over for Question 14

14 The table shows the average monthly rental price for a two-bedroom property in the UK in 2010 and in 2012

Year	2010	2012
Average monthly rental price	£1042	£1187

(Data source: www.rentright.co.uk)

(a) Using 2010 as the base year, calculate the index number for the average monthly rental price in 2012

.....

(2)

The index number for the average monthly rental price for a three-bedroom property in the UK for the same period is 120

*(b) Compare how the monthly rental prices changed from 2010 to 2012 for two-bedroom and three-bedroom properties in the UK.

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(2)

(Total for Question 14 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS