Write your name here

Surname	Other names

Pearson Edexcel Award

Centre Number	Candidate Number

Statistical Methods

Level 1
Calculator allowed

Wednesday 13 May 2015 – Morning
Time: 1 hour 30 minutes

Paper Reference
AST10/01

You must have:
Pen, HB pencil, eraser, calculator, ruler, protractor.

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- 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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P 4 4 9 5 5 A 0 1 2 0

PEARSON

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 The pictogram shows the number of pizzas sold by a shop on each of 5 days last week.

	Number of pizzas sold
Monday	○ ○ ○
Tuesday	○ ○ ◿
Wednesday	○ ◗
Thursday	○ ○ ○ ◗
Friday	○ ○ ○ ○ ◿

Key: ○ represents 20 pizzas

(a) Work out the number of pizzas sold on Monday.

.....

(1)

(b) On which day did the shop sell 45 pizzas?

.....

(1)

(c) How many more pizzas were sold on Friday than on Wednesday?

.....

(2)

(Total for Question 1 is 4 marks)

2 Charlie recorded the gender of each of her cousins.
Here are her results.

male	female	male	male	female
male	male	male	female	male
female	male	male	female	female

(a) Complete the table for Charlie's results.

Gender	**male**	**female**
Frequency		

(2)

(b) Of which gender does Charlie have the most cousins?

.....

(1)

(Total for Question 2 is 3 marks)

3 The table shows information about 7 laptops.

Laptop	Type of processor	RAM (Gb)	Hard drive memory (Tb)	Screen size (inches)	Cost (£)
A	Intel	8	1	15.6	399
B	Celron	4	0.5	15.6	329
C	Intel	4	0.75	15.6	529
D	AMD	4	0.5	11.6	329
E	Celron	6	1	15.6	349
F	Intel	12	1	15.6	899
G	AMD	4	0.32	13.5	279

(a) Write down the cost of laptop **C**.

£ .....

(1)

(b) Which laptop has the largest RAM?

.....

(1)

(c) What is the screen size of the laptop with the smallest size of hard drive memory?

..... inches

(1)

There are two of these 7 laptops with the same screen size, the same size of hard drive memory and the same type of processor.

(d) What is the type of processor in these two laptops?

.....

(1)

(Total for Question 3 is 4 marks)

4 (a) There are 4 counters in a bag.
Each counter is red.

Karen is going to take at random one of the counters from the bag.

Write down the **word** that best describes the likelihood that the counter

(i) will be red,

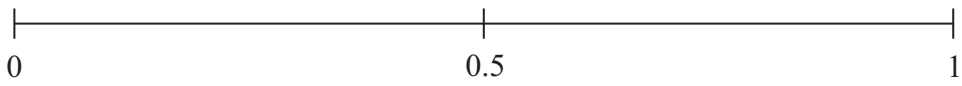
.....

(ii) will be white.

.....

(2)

(b) On the probability scale, mark with a cross (×) the probability of an event that is **unlikely** to happen.

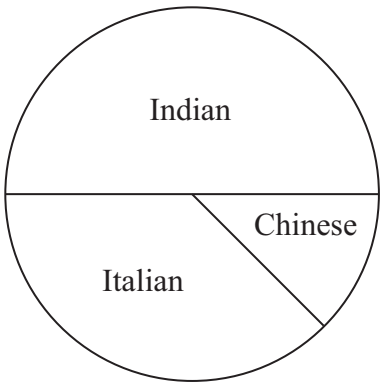


(1)

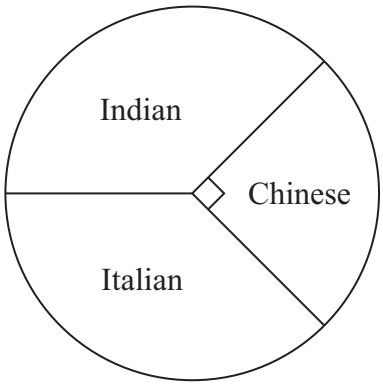
(Total for Question 4 is 3 marks)

5 In a survey, Phil asked some people what type of food they like the best.
They could choose from Indian, Chinese and Italian.

The pie charts give information about his results.



Males



Females

Phil asked the same number of males and females.

(a) Use the pie charts to compare the results for the males and the females.
Write down two comparisons.

1 .....

.....

2 .....

.....

(2)

Phil asked a total of 84 females.

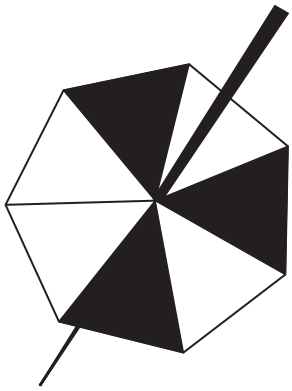
(b) Work out the number of females who like Chinese the best.

.....

(2)

(Total for Question 5 is 4 marks)

6 Here is a fair 7-sided spinner.



The spinner can land on black or on white.

Lola is going to spin the spinner once.

(a) Lola says

> "The probability that the spinner will land on white is greater than the probability that the spinner will land on black."

Is she right?
Explain your answer.

.....

.....

(1)

Lola spins the spinner once.

(b) Find the probability that the spinner will land on black.

.....

(2)

(Total for Question 6 is 3 marks)

7 Hoveg asked each of his friends to write down their favourite flavour of ice cream.

Here are his results.

Chocolate	Strawberry	Chocolate	Toffee	Strawberry
Toffee	Toffee	Vanilla	Toffee	Toffee
Strawberry	Vanilla	Chocolate	Toffee	Strawberry
Chocolate	Toffee	Strawberry	Vanilla	Chocolate
Toffee	Chocolate	Toffee	Chocolate	Vanilla

(a) Complete the frequency table to show his results.
Chocolate has been done for you.

Favourite flavour ice cream	**Tally**	**Frequency**
Chocolate	𝍸 ||	7
Toffee		
Strawberry		
Vanilla		
	Total	25

(2)

(b) Draw a bar chart for the information in your frequency table.

(3)

(Total for Question 7 is 5 marks)

8 Djung wants to find out about the heights of the children in his swimming club.
He is going to use class intervals.

(a) Design a suitable data collection sheet he could use to collect the information.

(3)

Here are the heights, in cm, of some boys and girls.

Boys	174	173	175	167	165
Girls	178	170	172	179	182

(b) Compare the median height of these boys with the median height of these girls.
You must show your working.

.....

.....

(3)

(Total for Question 8 is 6 marks)

9 Jason has a cafe.

The hot drinks he sells in his cafe are tea, coffee and chocolate.

On Saturday, 150 people each had one hot drink in Jason's cafe.

The incomplete two-way table gives some information about these people and the hot drinks they had.

	tea	**coffee**	**chocolate**	**Total**
male	25			
female		32		
Total	37	48		

In total

70 males had one hot drink,
80 females had one hot drink.

(a) Enter this information in the two-way table.

(1)

(b) Complete the two-way table.

(3)

(Total for Question 9 is 4 marks)

10 Jack is going to spin an ordinary fair coin and roll an ordinary fair 6-sided dice.

(a) List all the possible outcomes Jack could get.
One has been done for you.

(Heads, 1) .....

.....

.....

.....

(2)

(b) Write down the probability that the coin will land on Heads and the dice will land on 1

.....

(1)

Emma is going to spin three ordinary fair coins.

Here is a list of all the possible outcomes.

(Heads, Heads, Heads)	(Heads, Heads, Tails)
(Heads, Tails, Heads)	(Tails, Heads, Heads)
(Heads, Tails, Tails)	(Tails, Heads, Tails)
(Tails, Tails, Heads)	(Tails, Tails, Tails)

(c) Write down the probability that Emma

(i) will get three Heads or three Tails,

.....

(ii) will **not** get two Heads and one Tail.

.....

(2)

(Total for Question 10 is 5 marks)

11 Yoshi made some pancakes.

The stem and leaf diagram gives information about the weights, in grams, of the pancakes he made.

10	4	6	6	8					
11	0	2	2	2	2	2	5	6	9
12	3	5	5	5	7	8			
13	0	4	7	9					
14	3	9							

Key:
14 | 3 means 143 grams

(a) How many pancakes did Yoshi make?

.....

(1)

(b) Write down the modal weight.

..... grams

(1)

(c) Work out the range of the weights.

..... grams

(2)

(Total for Question 11 is 4 marks)

12 Justin wants to find out about the numbers of times people use taxis.

He asks this question on a questionnaire.

How many times do you use a taxi?

☐ 1 – 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 6+

This is **not** a good question.

(a) Explain why.
Give two reasons.

1 .....

2 .....

(2)

Justin also wants to find out about the numbers of passengers in taxis.

He records the number of passengers in each of 30 taxis.

Justin's results are summarised in the frequency table.

Number of passengers	Frequency
0	3
1	12
2	8
3	5
4	2

(b) Write down the modal number of passengers.

.....

(1)

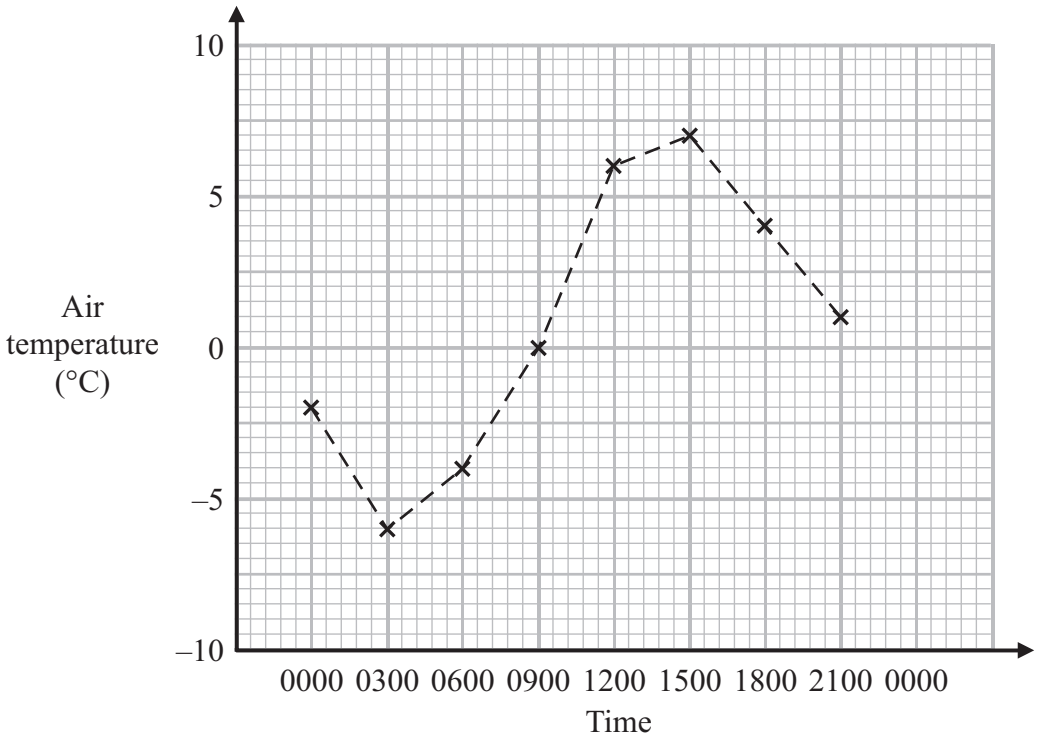
(c) Work out the total number of passengers in the 30 taxis.

.....

(2)

(Total for Question 12 is 5 marks)

13 The time-series graph gives information about the air temperatures recorded at different times during a Monday in February.



(a) Write down the air temperature recorded at 0900.

..... °C

(1)

(b) What happens to the air temperature between 0300 and 1500?

.....

(1)

(c) Work out the difference in the air temperature at 0600 and at 1800.

..... °C

(2)

Simon predicts that the air temperature at 0000 on Tuesday is −2°C.

(d) (i) Show Simon's prediction on the time-series graph.

(ii) Comment on the reliability of Simon's prediction.
Give a reason for your answer.

.....

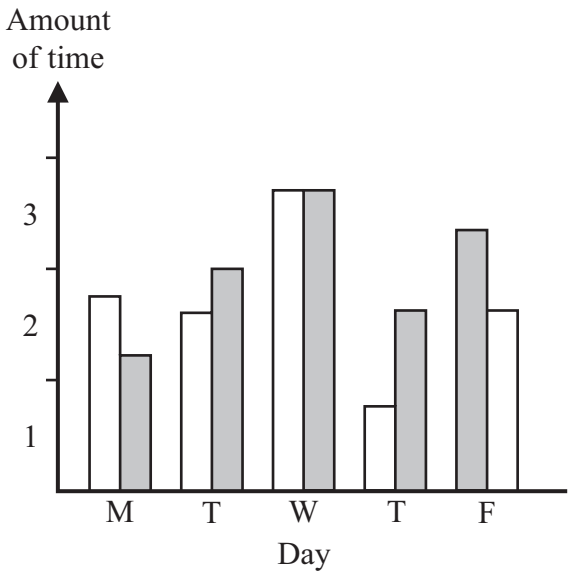
.....

.....

(2)

(Total for Question 13 is 6 marks)

14 The dual bar chart shows information about the amounts of time, in hours, Joe and Mary spent watching TV on each of 5 days last week.



Write down three things that are wrong or could be misleading about the dual bar chart.

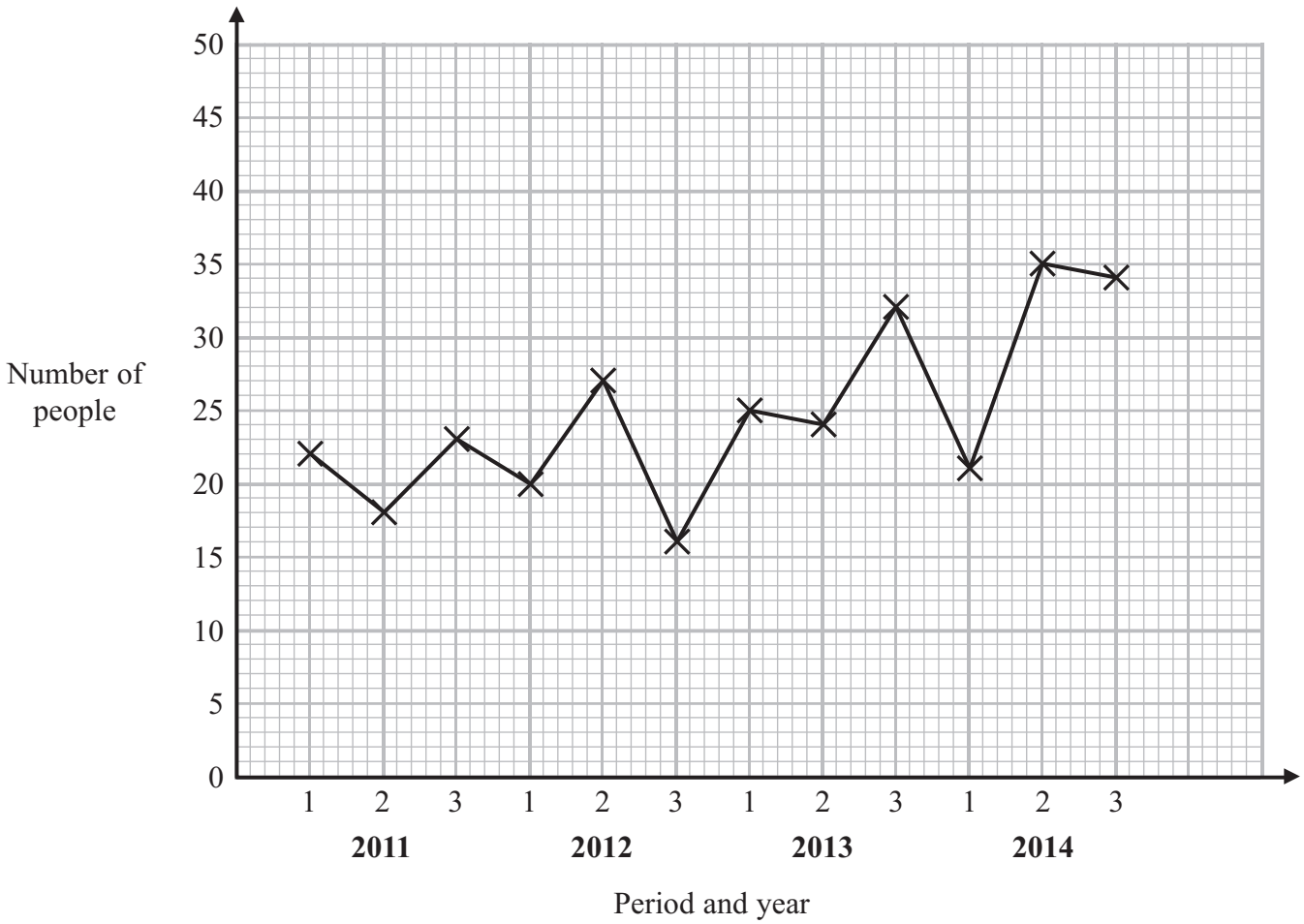
1 .....

2 .....

3 .....

(Total for Question 14 is 3 marks)

15 The time-series graph gives information about the number of people using a help line in each period of 4 months from 2011 to 2014.



(a) Describe the trend in the number of people using the help line from 2011 to 2014.

.....

(1)

(b) Compare the total number of people using the help line in 2011 with the total number of people using the help line in 2012.

.....

.....

(3)

(Total for Question 15 is 4 marks)

16 The table gives information about the amount of rainfall, in mm, and the number of hats sold in a shop for each of 7 days in Seaton.

Amount of rainfall (mm)	7.5	4	10	8	16	14	14.5
Number of hats sold	18	8	18	11	29	23	27

(a) Work out the mean of the amounts of rainfall.
Give your answer to 1 decimal place.

..... mm

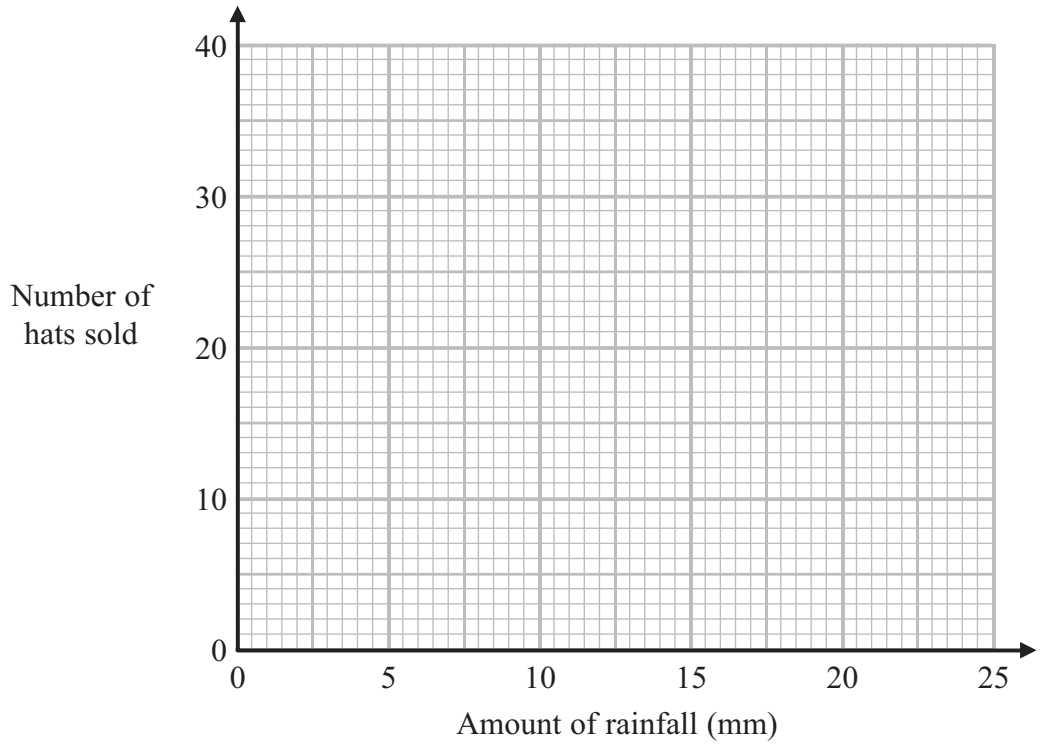
(2)

(b) Work out the range of the numbers of hats sold.

.....

(2)

(c) On the grid, draw a scatter graph for the information in the table.



(2)

(d) Describe the correlation between the amount of rainfall and the number of hats sold.

.....

(1)

(Total for Question 16 is 7 marks)

17 There are red sweets, green sweets and yellow sweets in a bag.

Helen is going to take at random a sweet from the bag.

The probability that the sweet will be red is 0.45
The probability that the sweet will be green is 0.25

(a) Work out the probability that the sweet will be red or green.

.....

(2)

(b) Work out the probability that the sweet will **not** be red.

.....

(2)

(Total for Question 17 is 4 marks)

18 Samina has an ordinary 6-sided dice.
The dice is biased.

Samina wants to find an estimate for the probability that the dice will land on 6

Samina rolls the dice 24 times.
She gets 6 a total of 3 times.

(a) Write down an estimate for the probability that when the dice is rolled it will land on 6

.....

(1)

(b) Explain why this is **not** a reliable estimate.

.....

.....

(1)

(Total for Question 18 is 2 marks)

19 The table and pie chart give information about the results of the matches played by a darts team in 2014.

Match result 2014	Frequency
Win	64
Lose	35
Draw	21

Match result 2014 **Total: 120 games**

(a) Calculate the angle for Win.
You must show your working.

.....°

(2)

In 2015, the darts team will play 180 matches.

(b) Find an estimate for the number of games the darts team will Win.

.....

(2)

(Total for Question 19 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS