

Write your name here

Surname

Other names

Pearson
Edexcel Award

Centre Number

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Candidate Number

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Statistical Methods

Level 1

Calculator allowed

Monday 15 January 2018 – 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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Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 The pictogram gives information about the number of books Bruno read in each of the first four months of last year.

	Number of books
January	
February	
March	
April	
May	

In January, Bruno read 12 books.

- (a) Complete the key.

Key:  represents books

(1)

- (b) Write down the number of books read in April.

..... books

(1)

In May, Bruno read 7 books.

- (c) Show this information in the pictogram.

(1)

(Total for Question 1 is 3 marks)

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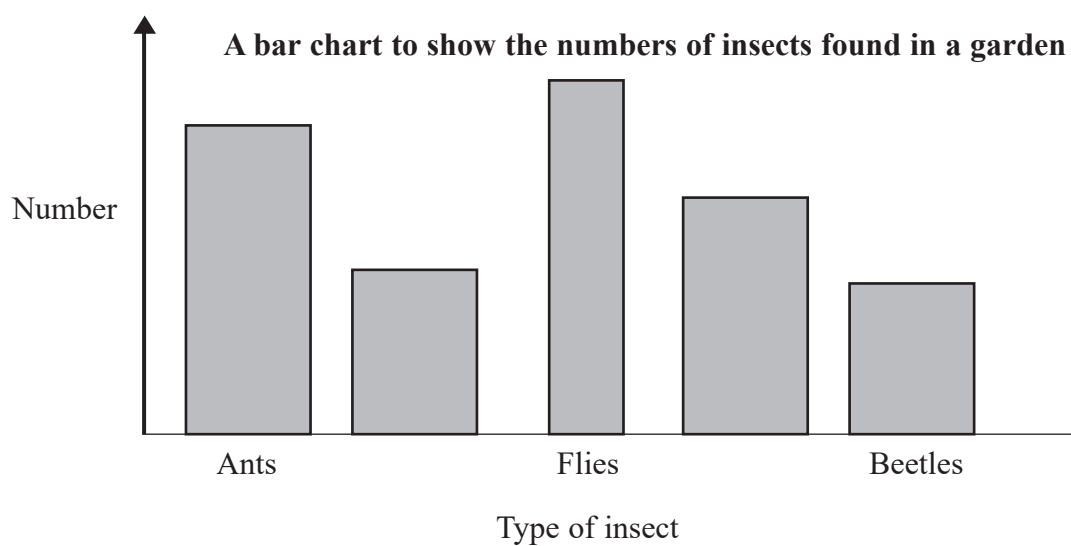


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2 The bar chart gives information about the numbers of insects found in a garden.



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

1.....

2.....

3.....

(Total for Question 2 is 3 marks)



3 Olga wants to find out how often people go to the gym.

She uses this question on a questionnaire.

How often do you go to the gym?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0-3	3-6	6-9	9-12

Write down **two** things that are wrong with this question.

.....

.....

.....

.....

(Total for Question 3 is 2 marks)

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4 55 people were asked which of three sports they like the best.

The sports are darts, snooker and bowls.

Some information about the results is shown in the two-way table.

	darts	snooker	bowls	Total
males	12		10	
females		4		17
Total	17			55

(a) Complete the two-way table.

(3)

One of the people asked is picked at random.

(b) Write down the probability that this person is

(i) a female,

.....

(ii) a female that likes snooker the best,

.....

(iii) a male who likes either darts or bowls the best.

.....

(4)

(Total for Question 4 is 7 marks)



5 The table shows information about five energy drinks.

The information is based on the same volume of each drink.

Drink	Calories (kcal)	Sodium (mg)	Carbs (g)	Caffeine (mg)
A	110	200	28	80
B	140	40	31	80
C	100	180	27	92
D	110	180	19	71
E	220	80	58	210

(a) Write down the weight of carbs in drink C.

..... g
(1)

One of the drinks has 210 mg of caffeine.

(b) Which drink?

.....
(1)

Two of the drinks have the same number of calories.

(c) Which two drinks?

..... and
(1)

(d) Work out the total weight of sodium in the five drinks.

..... mg
(2)

(Total for Question 5 is 5 marks)



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6 Baka wants to find out which types of fruits each of his friends like to eat.
Design a suitable data collection sheet he could use to collect this information.

(Total for Question 6 is 2 marks)

7 Here are two sets of cards.



The first set is labelled with the letters X, Y and Z.
The second set is labelled with the letters R, B, P and G.
Paul is going to pick one card from each set.
List all the possible outcomes that Paul could pick.
One has been done for you.

(X, R)

.....

.....

.....

(Total for Question 7 is 2 marks)



8 Zhu asked some people to name their favourite type of food.

Here are her results.

Curry	Chinese	Italian	Fish and chips
Chinese	Curry	Curry	Chinese
Curry	Fish and chips	Chinese	Curry
Italian	Greek	Curry	Fish and chips

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

Type of food	Number of people
Curry	6
Chinese	4
Italian	
Fish and chips	
Greek	

(2)

(b) Which type of food was the least popular?

.....
(1)

Here are some words that can be used to describe types of data.

continuous discrete categorical

(c) Complete correctly the sentence below with a word from the list.

Type of food is an example of data.

(1)

(Total for Question 8 is 4 marks)



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9 A bag contains 8 sweets.

4 sweets are red.

3 sweets are yellow.

1 sweet is green.

One of these sweets is taken at random from the bag.

(a) Underline the word which best describes the likelihood that the sweet is red.

Impossible Unlikely Evens Likely Certain

(1)

(b) On the probability scale, mark with a cross (×) the probability that the sweet is blue.



(1)

(c) On the probability scale, mark with a cross (×) the probability that the sweet is green.



(1)

(d) Write down the probability that the sweet is yellow.

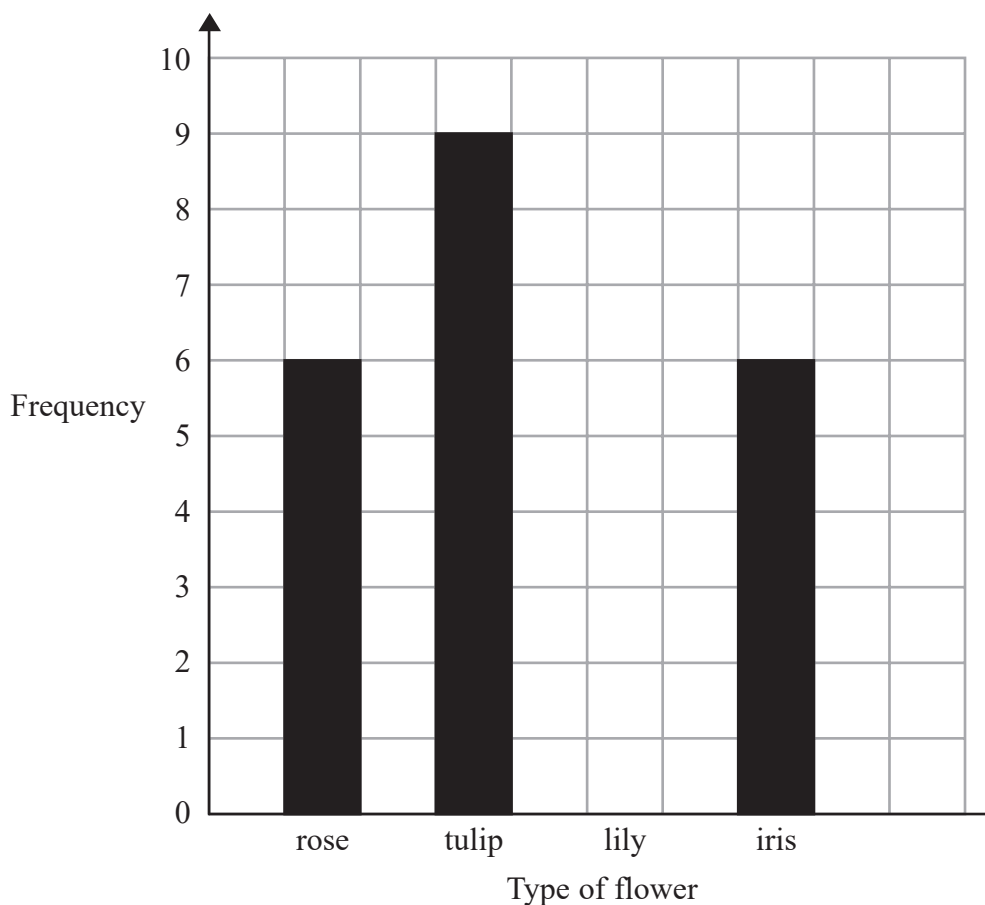
.....
(1)

(Total for Question 9 is 4 marks)



10 Cloda asked each of her friends to tell her their favourite type of flower.

This incomplete bar chart shows some information about their answers.



4 friends said that their favourite flower is lily.

(a) Complete the bar chart to show this information.

(1)

(b) How many of Cloda's friends said that rose was their favourite type of flower?

.....
(1)

(c) Which flower did most friends say is their favourite type of flower?

.....
(1)

Two of the flowers are the favourite type of flower for the same number of Cloda's friends.

(d) Which two flowers?

..... and
(1)

(Total for Question 10 is 4 marks)

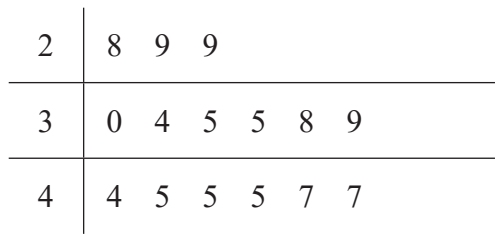


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11 The stem and leaf diagram gives information about the time, in seconds, it took each of 15 people to run in a 200 metres race.



Key: 2 8 represents 28 seconds

(a) Write down the mode of the times.

..... seconds
(1)

(b) Work out the range of the times.

..... seconds
(2)

One of the people in the race is chosen at random.

(c) Find the probability that this person took less than 32 seconds to run the 200 metres.

.....
(1)

(Total for Question 11 is 4 marks)



12 Saul and Sarah play a game with a biased 6-sided dice.

Saul and Sarah each roll the dice and record the number of times it lands on 6

Each time the dice lands on 6 the player who rolled the dice gets a point.

Saul rolled the dice 20 times.

He got 4 points.

- (a) Using Saul's results, find an estimate for the probability that the next time the dice is rolled the player gets a point.

.....
(1)

Sarah rolled the dice 200 times.

She got 30 points.

- (b) Using Sarah's results, find an estimate for the probability that the next time the dice is rolled the player gets a point.

.....
(1)

- (c) Whose results, Saul's or Sarah's, gives the more reliable estimate for the probability that the next time the dice is rolled the player gets a point?
Give a reason for your answer.

.....
(2)

(Total for Question 12 is 4 marks)

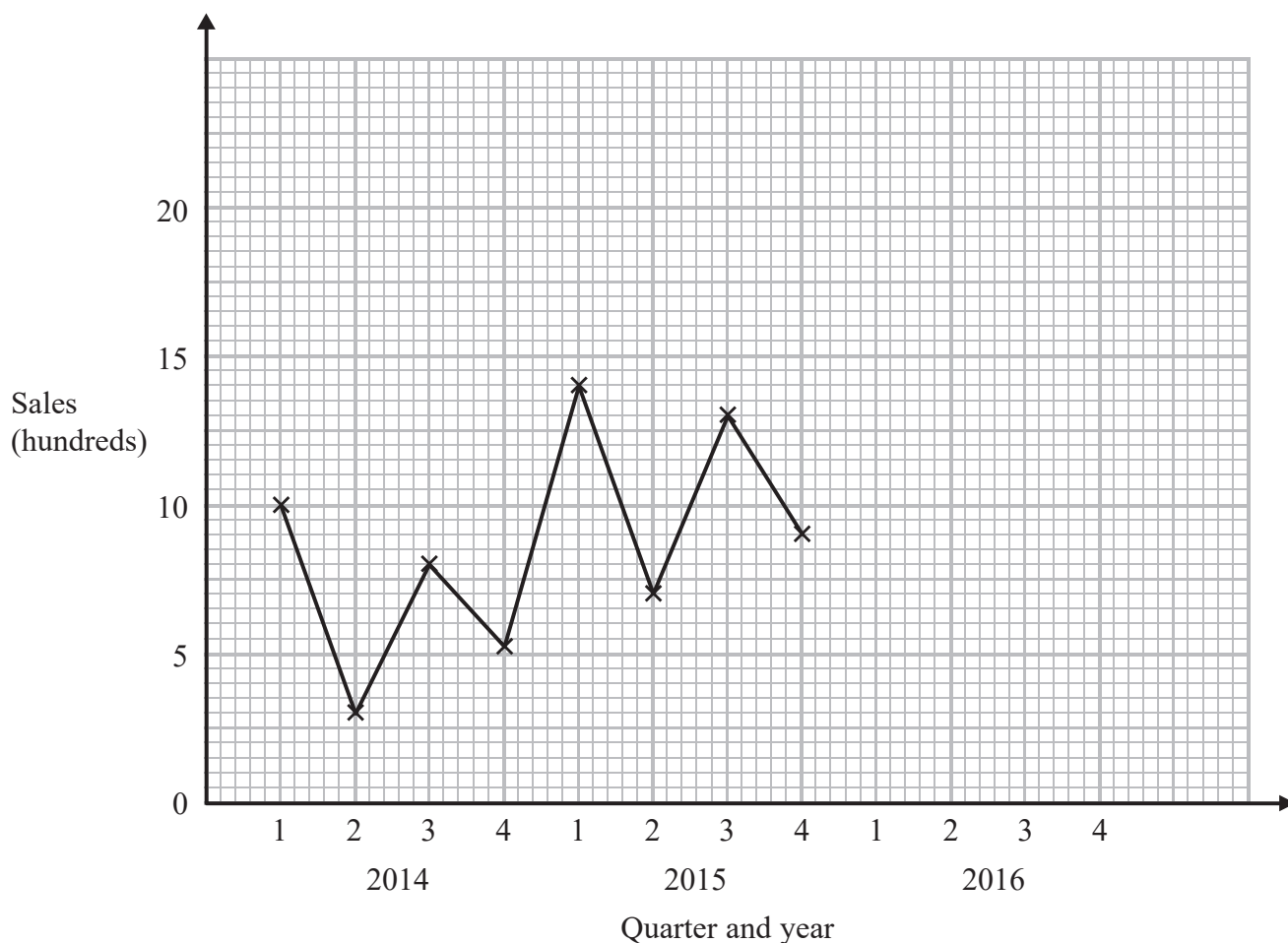


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- 13 The time-series graph gives information about the number of new cars sold, in hundreds, by a garage in each quarter of 2014 and 2015.



- (a) Write down the number of new cars sold in quarter 1 of 2015.

..... hundred
(1)

The table gives information about the number of new cars sold, in hundreds, by the garage in each quarter of 2016.

Year	2016			
Quarter	1	2	3	4
Sales (hundreds)	16	10	18	9

- (b) Use the information in the table to continue the time-series graph for 2016. (2)
- (c) Describe the trend in the number of new cars sold by the garage from 2014 to 2016.

.....
(1)

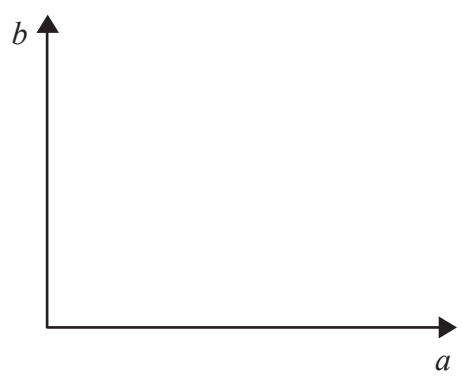
(Total for Question 13 is 4 marks)



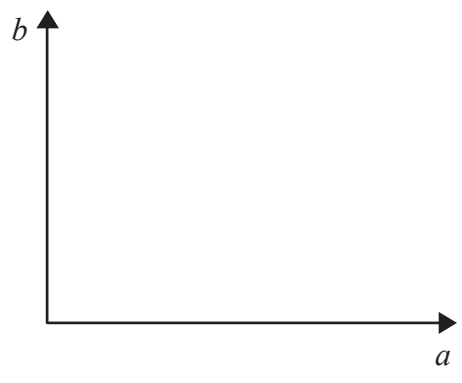
P 5 6 1 8 0 A 0 1 3 2 0

14 (a) Using the axes below, draw a scatter graph that would show

(i) positive correlation,

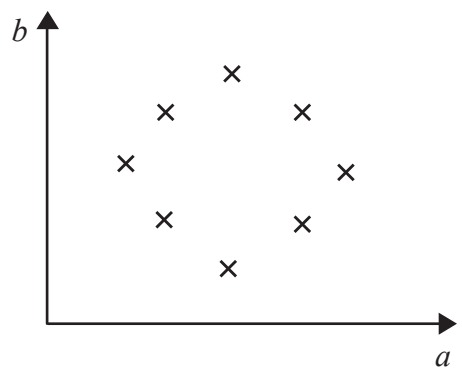


(ii) negative correlation.



(2)

(b) Describe the type of correlation shown in the scatter graph below.



(1)

(Total for Question 14 is 3 marks)



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15 Fred recorded the weights, in grams, of nine tomatoes grown in his garden.

Here are his results.

113 108 115 118 100 104 116 112 104

(a) Find the median.

..... grams
(2)

(b) Work out the mean.

..... grams
(2)

(c) Work out the range.

..... grams
(2)

Sally also recorded the weight, in grams, of nine tomatoes grown in her garden.

She found that the mean was 115 grams and that the range was 14 grams.

(d) Compare the means and the ranges for Fred's tomatoes and for Sally's tomatoes.

Mean:

Range:
(2)

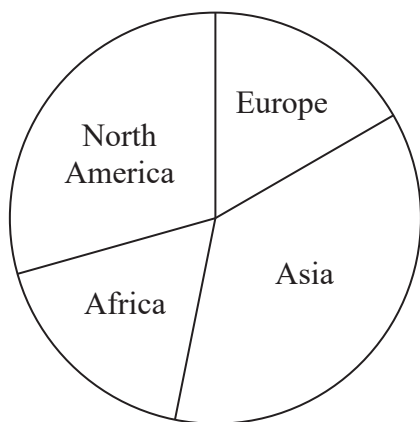
(Total for Question 15 is 8 marks)



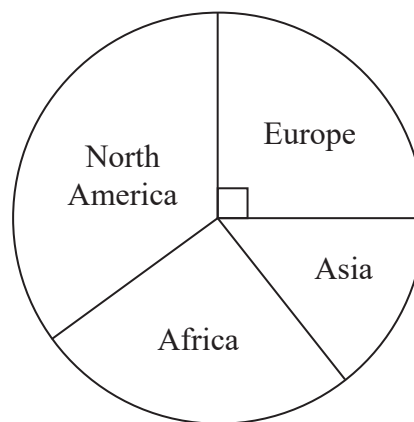
16 In a survey, some people were asked to name their favourite holiday destination.

They could choose from Europe, Asia, Africa and North America.

The pie charts give information about the results for males and the results for females.



Males



Females

The same number of males and females were asked.

(a) Use the pie charts to compare the results for the males and for the females.

Write down **two** comparisons.

.....

.....

.....

.....

(2)

18 females said that their favourite holiday destination is Europe.

(b) Work out the total number of people asked in the survey.

.....

(3)

(Total for Question 16 is 5 marks)



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17 Ludvig can choose between three different ways to go to work.

He can choose to walk or he can choose to drive or he can choose to cycle.

The table shows the probabilities that on any day he is going to work he chooses to walk and he chooses to drive.

	walk	drive	cycle
Probability	0.10	0.25	

Work out the probability that on a day Ludvig is going to work

(i) he chooses to walk or drive,

.....

(ii) he chooses to cycle.

.....

(Total for Question 17 is 4 marks)



18 Raj recorded the number of eggs his chickens laid each day for 20 days.

Here are his results.

2	4	3	2	5
3	3	4	2	3
1	5	3	4	2
2	3	1	4	3

(a) Complete the frequency table for his results.

Number of eggs	Tally	Frequency
1		
2		
3		
4		
5		

(2)

(b) Work out the total number of eggs laid by Raj's chickens on these 20 days.

.....
(2)

(Total for Question 18 is 4 marks)



19 Yolanda uses some letter cards to spell the word “MATHEMATICS”.



Yolanda takes at random one of these cards.

(a) Write down the probability that Yolanda takes a card with a letter M.

.....
(1)

(b) Write down the probability that Yolanda takes a card with a letter that is **not** A.

.....
(1)

(c) Find the probability that Yolanda takes a card with a letter E or a letter T.

.....
(1)

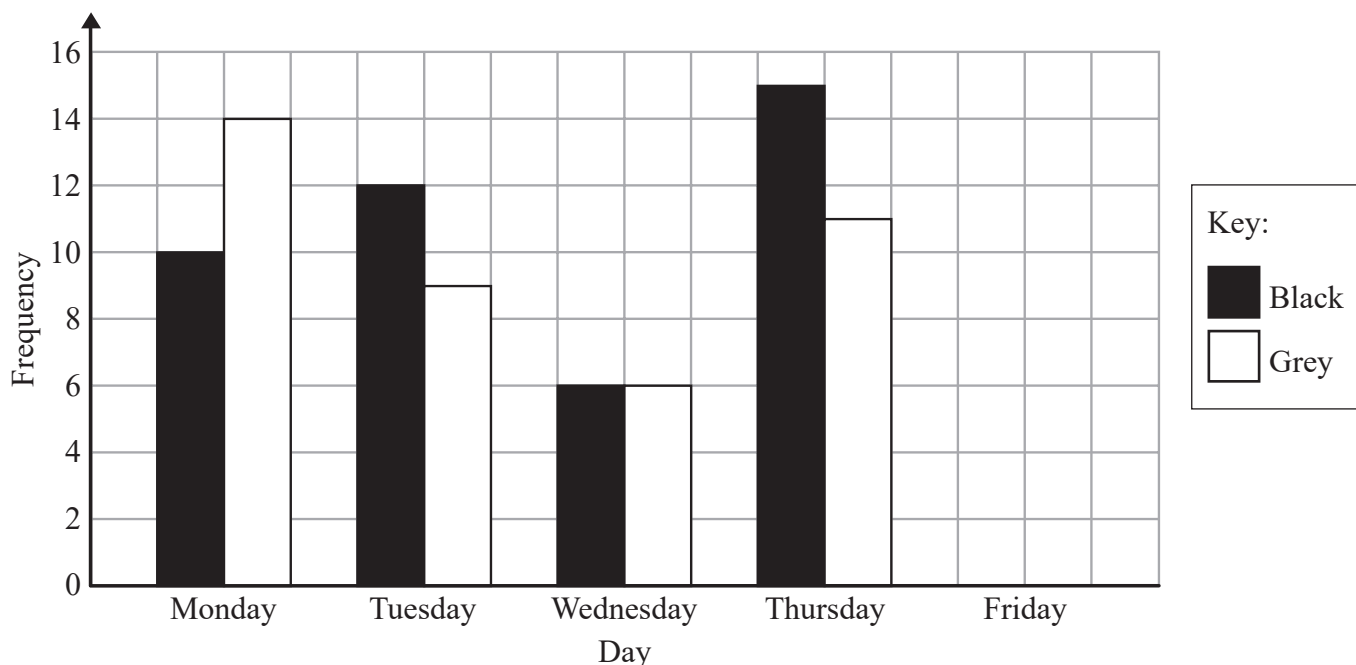
(Total for Question 19 is 3 marks)



20 Julie sells scarves.

Each scarf is either black or grey.

The dual bar chart gives information about the numbers of scarves Julie sold on each of four days last week.



(a) How many grey scarves did Julie sell on Tuesday?

.....
(1)

On Friday, Julie sold 8 black scarves and 11 grey scarves.

(b) Show this information on the dual bar chart.

(2)

On Thursday, Julie sold more black scarves than grey scarves.

(c) How many more?

.....
(1)

On one of the days, the number of black scarves sold by Julie was the same as the number of grey scarves she sold.

(d) Which day?

.....
(1)

(Total for Question 20 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS

