

Please check the examination details below before entering your candidate information

Candidate surname					Other names				
Centre Number					Candidate Number				

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

Monday 2 June 2025

Morning (Time: 1 hour 30 minutes) **Paper reference** **1ST0/1F**

Statistics
PAPER 1
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.

Turn over ►

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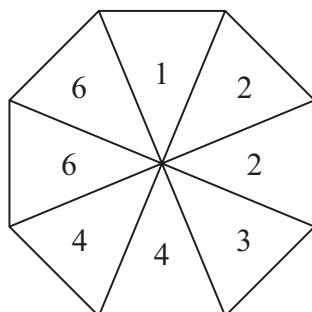

Pearson

Answer ALL the questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Chiara spins a fair 8-sided spinner.

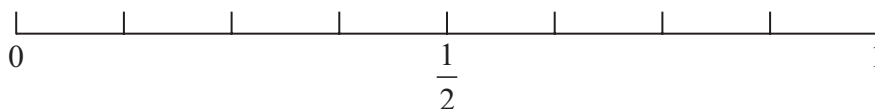


- (a) Circle the word from the list that best describes the likelihood that the spinner lands on a 5

certain evens likely impossible unlikely

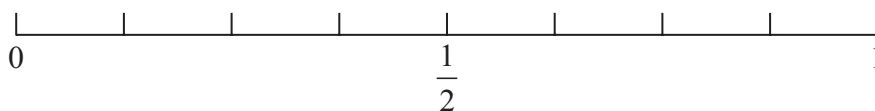
(1)

- (b) On the probability scale, mark with a cross (×) the probability that the spinner lands on a 4



(1)

- (c) On the probability scale, mark with a cross (×) the probability that the spinner lands on an even number.



(1)

- (d) Write down the probability that the spinner lands on a 3

(1)

Chiara spins the spinner a total of 80 times.

- (e) Work out the expected number of times the spinner will land on a 3

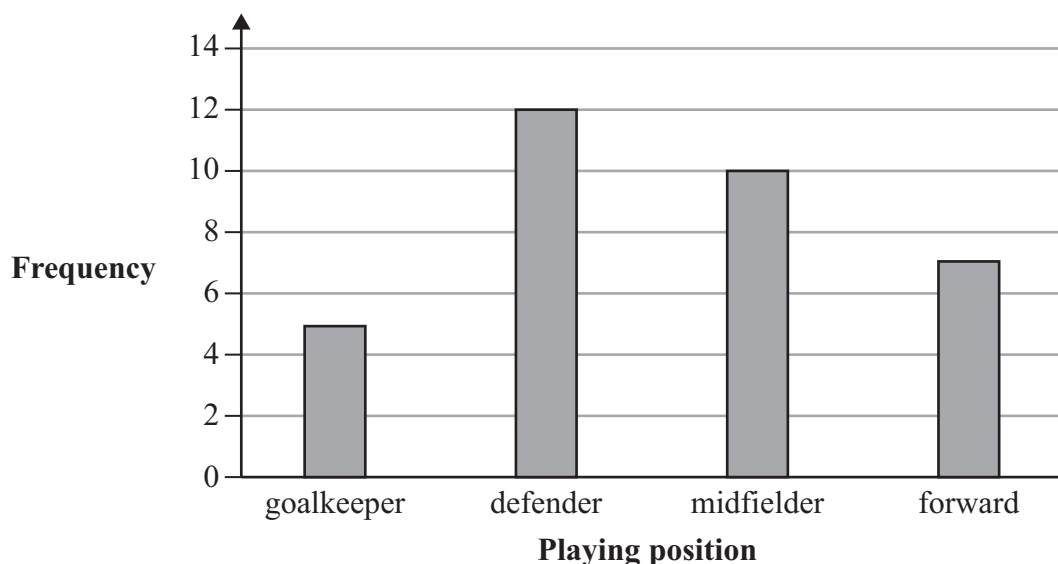
(1)

(Total for Question 1 is 5 marks)

- 2 David collected data about 34 players on the 2022–2023 Manchester United Premier League football team.

Each player has a playing position identified as goalkeeper or defender or midfielder or forward.

The bar chart shows information about the playing positions of these players.



(Source: www.premierleague.com)

- (a) Circle the **two** statistical diagrams from the list that would also be appropriate to display this data.

time series

pictogram

pie chart

population pyramid

(1)

- (b) Which playing position has the greatest number of players?

(1)

- (c) Which playing position has twice as many players as the goalkeeper position?

(1)

David concludes that there are more defenders than midfielders who play for Premier League football teams.

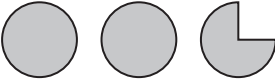
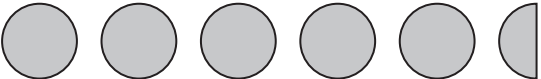
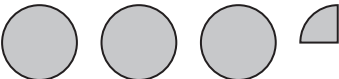
- (d) Give one limitation of David's conclusion.

(1)

(Total for Question 2 is 4 marks)

- 3 Johan sells tickets for a walking tour, a boat tour and a bus tour.

The pictogram shows the number of people who chose each type of tour one Saturday morning in June.

Type of tour	Number of people
Walking	
Boat	
Bus	

Key:



represents 4 people

- (a) Write down the modal type of tour.

(1)

- (b) How many more people chose the boat tour than the bus tour on this morning?

(1)

Johan thinks that the number of people choosing each type of tour will change in July compared to June.

He wants to investigate the number of people choosing each type of tour.

- (c) Write down a hypothesis that he could use for this investigation.

(1)

- (d) Suggest **two** things that Johan should do when collecting his data to ensure that he can compare his results for July with the results for June.

(2)

(Total for Question 3 is 5 marks)

- 4 Louise wants to find out what local residents think about changes to car parking in the local town centre.

Louise is going to use a questionnaire.

Here is one of the questions she puts on the questionnaire.

Why do you visit the town centre?

- (a) Circle the word from the list that best describes the type of data that this question will collect.

quantitative

discrete

continuous

qualitative

(1)

Here is a different question on her questionnaire.

How often do you visit the town centre?

1–2 times

☐

2–3 times

☐

4 or more times

☐

- (b) Discuss whether or not this is a suitable question for the questionnaire.

(2)

Here is another question that Louise wants to put on the questionnaire.

Do you agree that the increase in car parking charges will reduce visitor numbers to the town centre?

Yes

☐

No

☐

Don't know

☐

- (c) This is not a suitable question.
Explain why.

(1)

(Total for Question 4 is 4 marks)

- 5 Paul has two fair 6-sided dice. One dice is red and one dice is blue.

He rolls both dice and adds the scores shown on their faces to get a total.

- (a) Complete the sample space diagram to show all the possible totals.

(1)

		Score on blue dice					
		1	2	3	4	5	6
Score on red dice	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8		
	5	6	7				
	6	7	8				

- (b) Find the probability that the total score is 5

(1)

- (c) Find the probability that the total score is 8 or more.

(1)

(Total for Question 5 is 3 marks)



6 There is an award for board and card games.

Matthew collected a list of the 9 games that were recommended by the awards panel in the critics prize category for 2022

Here is a list of the ratings given to these games by players.
A higher rating represents a better game.

8.0 7.79 7.52 7.0 6.6 7.2 6.9 7.59 6.9

(Source: *www.spiel-des-jahres.de* and *boardgamegeek.com*)

(a) Work out the mean of the ratings.

.....
(2)

(b) Work out the range of the ratings.

.....
(2)

Matthew also collected the ratings awarded to the games that were recommended in 2021

The table gives information about these ratings.

Mean	Range
7.325	0.9

Matthew concludes that the players liked the games recommended by the panel in 2022 more than they liked the games recommended by the panel in 2021

(c) Do the statistics support this conclusion?
Give a reason for your answer.

.....
.....
(1)

(d) Give another conclusion based on these statistics.

.....
.....
(1)

(Total for Question 6 is 6 marks)

- 7 A company offers a number of activities for its employees.
Yusra wants to investigate what employees at the company think about the activities.

Here is her plan for data collection, for calculations and for diagrams.

Data collection

Give a questionnaire to all the employees as they leave work on Friday.

The questionnaire will ask

- which activities the employees have done
- how many times they have done each activity
- do they rate each activity as 'excellent', 'good', 'adequate', 'poor' or 'very poor'

She asks people to put their completed questionnaires in a box on the reception desk.

Calculations

Find the modal activity done.

Calculate the mean rating for each activity.

Diagrams

Draw a bar chart to show how many employees did each activity.

Draw a pie chart for the ratings for the activities.

Discuss whether Yusra's plans for data collection, for calculations and for diagrams are appropriate.

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(Total for Question 7 is 6 marks)



8 Passengers for airline flights have their suitcases weighed when they check in.

LocalHop offers flights to and from islands in a small plane.

Here is a list of the weights, in kilograms, of each of the suitcases for a flight to one of the islands on Monday.

16.8 8.9 15.7 16.7 15.4 4.1 19.2 17.4 16.4 15.3 14.9

Mikolaj thinks that it is more appropriate to use the median rather than the mean as an average for these weights.

(a) Explain why Mikolaj may be correct.

(1)

(b) Calculate the interquartile range for these weights.

(2)

For the return flight on Sunday the interquartile range for the weights of the suitcases is 1.6 kilograms.

(c) Compare these interquartile ranges in context.

(1)

(Total for Question 8 is 4 marks)



- 9 Priya is the manager of a company that makes toys.

The company wants to extend the working hours of the employees to increase production. Priya plans to ask a sample of the employees what they think about the proposed changes.

Each employee works in the department of administration, customer service, manufacturing or delivery.

The table shows the number of employees working in each of the departments.

Department	Administration	Customer service	Manufacturing	Delivery
Number of employees	42	35	120	48

Priya suggests using a stratified sample that is stratified by department.

- (a) Explain why this is appropriate.

(1)

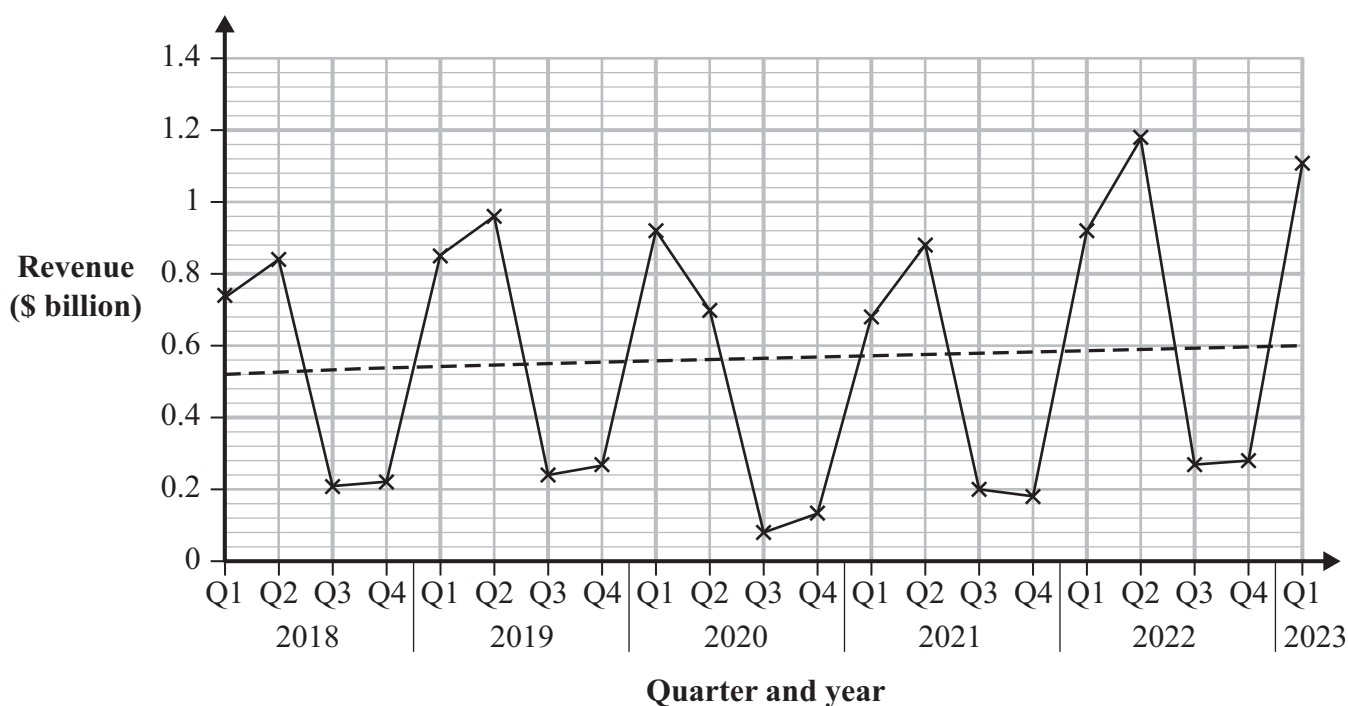
Priya plans to sample 50 of the employees.

- (b) Work out the number of employees in the manufacturing department she should include in this sample.

(2)

(Total for Question 9 is 3 marks)

- 10 The time series graph gives information about the revenue, in \$ billion, for the skiing resort of Vail each quarter from Quarter 1, 2018 to Quarter 1, 2023



(Source: www.macrotrends.net)

- (a) For which year and quarter was the revenue the greatest?

(1)

The 4-point moving averages for the data and the trend line are also plotted on the grid.

- (b) Explain why it is appropriate to calculate 4-point moving averages for this set of data.

(1)

- (c) Describe and interpret the trend shown by the time series graph.

(2)



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(d) Compare and interpret the seasonal variation for each quarter of the revenue for the years 2018 to 2022

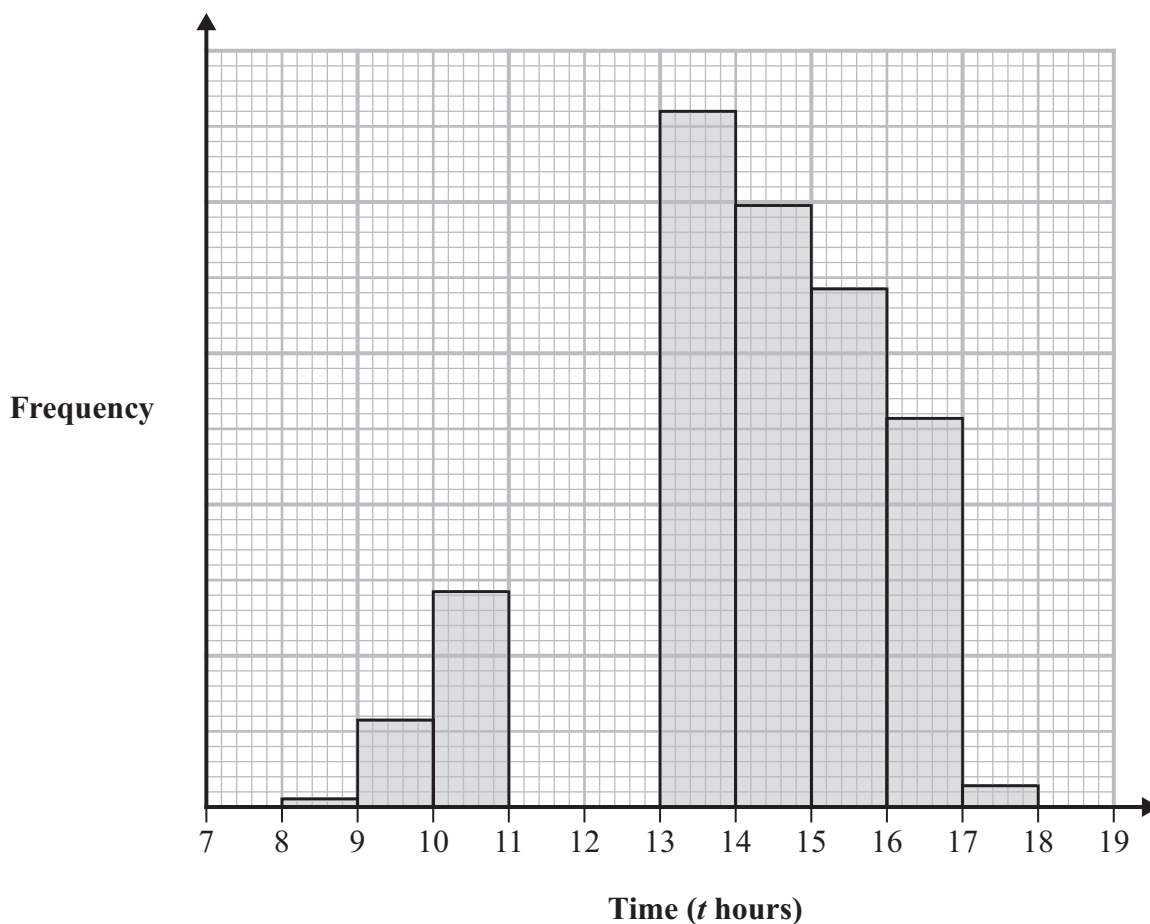
(2)

(Total for Question 10 is 6 marks)



- 11 Benjamin collected data on the results for the male competitors in the Ironman Canada competition in 2022

The incomplete histogram and incomplete grouped frequency table give information about the times taken, in hours, for these competitors to complete the competition.



(Source: www.coachcox.co.uk)

Time (t hours)	Frequency
$8 < t \leq 9$	2
$9 < t \leq 10$	23
$10 < t \leq 11$	58
$11 < t \leq 12$	134
$12 < t \leq 13$	188
$13 < t \leq 14$	183
$14 < t \leq 15$	
$15 < t \leq 16$	
$16 < t \leq 17$	102
$17 < t \leq 18$	6

(a) Use the information in the histogram to complete the table.

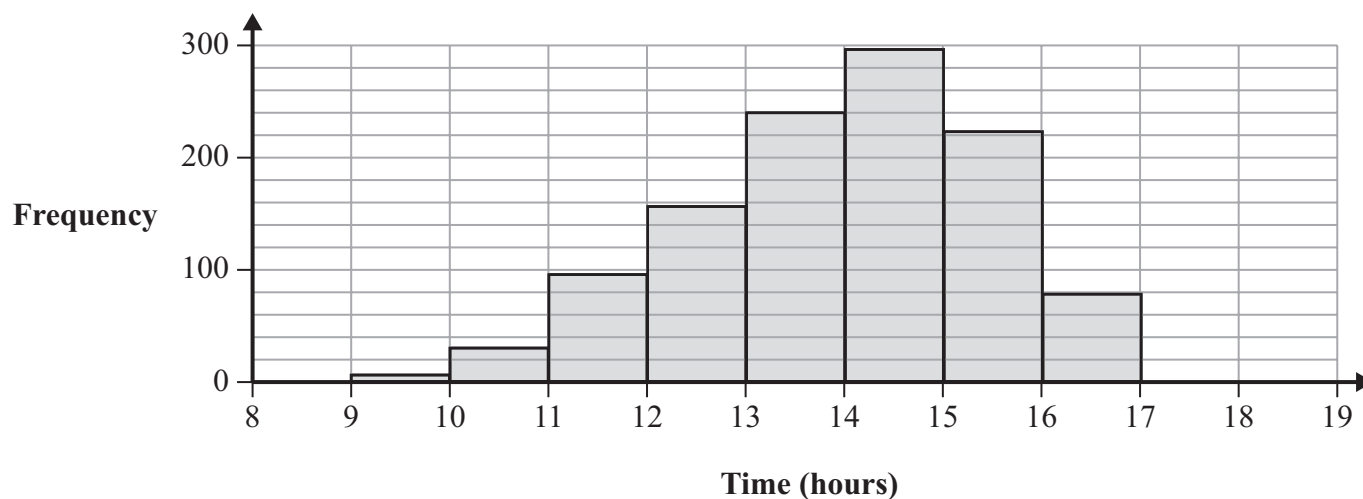
(2)

(b) Use the information in the table to complete the histogram.

(2)

Benjamin also collected data about the results of the male competitors in the Ironman UK competition in 2022

The histogram below gives information about the times taken, in hours, for these competitors to complete the Ironman UK competition.



(Source: www.coachcox.co.uk)

(c) Identify and interpret the type of skew shown in this histogram of the times for these competitors in the Ironman UK competition.

(2)

The time taken, in hours, for each competitor to complete the competition was recorded when the digital tag worn by the competitor passed the finish line.

(d) Discuss the reliability of any conclusions made based on this method of data collection. Give a reason for your answer.

(2)

Benjamin wants to find out how competitors prepare for Ironman competitions.

He plans to give a questionnaire to the finishers of his local competition.

There are 1200 people in the competition.

Benjamin intends to use systematic sampling and ask every 10th competitor who crosses the finish line.

(e) Comment on the appropriateness of this plan for data collection.

(3)

(Total for Question 11 is 11 marks)



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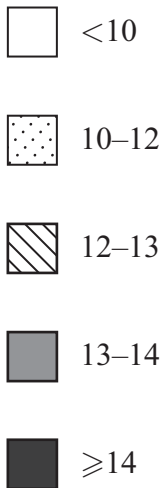
Turn over for next question



- 12 The choropleth map gives information about the percentage change in the mileage driven in Great Britain for each region from 2020 to 2021

Percentage change in mileage driven in 2020 to 2021

Key:



(Source: <https://roadtraffic.dft.gov.uk>)

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The table shows the number of miles driven in London in 2020 and in 2021

2020	2021
16.6 billion miles	18.5 billion miles

(a) Show that London has been shaded correctly on the choropleth map.

(2)

(b) Which region had the lowest percentage change in the mileage driven between 2020 and 2021?

(1)

Amy concludes that the percentage change in the mileage driven between 2020 and 2021 is the same for Wales and South West England.

(c) Explain why Amy may **not** be correct.

(1)

Tom concludes that the number of motor vehicles using the roads has increased the most in Scotland between 2020 and 2021

(d) Explain whether or not the choropleth map supports this conclusion.

(2)

(Total for Question 12 is 6 marks)

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13 Tsena is researching the ages of Oscar winners.

She has collected data from the internet about the ages of the winners of the Best Actor and Best Actress categories from 2000 to 2022

Data from the internet is an example of secondary data.

(a) Explain what is meant by secondary data.

(1)

Here are the ages of the winners of the Best Actor category from 2000 to 2022

40 36 47 29 43 37 38 45 50 48 60 50
39 55 44 32 41 41 59 37 83 53 54

(Source: www.openintro.org and www.oscars.org)

The stem and leaf diagram gives the ages of the winners of the Best Actress category from 2000 to 2022

(b) Complete the stem and leaf diagram with the ages of the winners of the Best Actor category.

You should also complete the key.

	Best Actress		Best Actor
2	2 5 6 8 8 9 9	2	
3	0 2 3 3 5 5	3	
4	4 4 5 5	4	
5	4	5	
6	0 0 1 2 3	6	
7		7	
8		8	

Key:

(Source: www.openintro.org and www.oscars.org)

(3)



- (c) Work out the median age for the winners of the Best Actress category from 2000 to 2022

.....
(1)

Michelle thinks it is more appropriate to use the interquartile range than the range as a measure of spread for these sets of data.

- (d) Give a reason why Michelle may think this.

.....
(1)

- (e) Work out the interquartile range for the winners of the Best Actress category from 2000 to 2022

.....
(2)

The table gives information about the ages of the winners of the Best Actor and Best Actress categories before 2000
It also gives information about the ages of the winners of the Best Actor category from 2000 to 2022

	Best Actor category before 2000	Best Actress category before 2000	Best Actor category from 2000 to 2022	Best Actress category from 2000 to 2022
Median	42	33	44	
Interquartile range	10.75	13.25	15	

- (f) Compare the distribution of ages for the winners of the Best Actor category with the distribution of ages for the winners of the Best Actress category.
You may use the blank column in the table to record your answers to parts (c) and (e) to help you.
You should interpret your comparisons in context.

(6)

(Total for Question 13 is 14 marks)



- 14 Some researchers wanted to find out how much agreement there was between experts in their rating of drinks.

They asked 11 experts to rate the different drinks and they calculated the Spearman's rank correlation coefficient between the ratings for each pair.

The table gives the Spearman's rank correlation coefficients for each pair of experts.

		Expert number									
		2	3	4	5	6	7	8	9	10	11
Expert number	1	0.289	0.235	0.354	0.302	-0.020	0.198	0.192	0.240	0.089	0.254
	2		0.467	0.314	0.530	0.304	0.258	0.411	0.097	0.400	0.393
	3			0.489	0.406	0.411	0.399	0.387	0.294	0.470	0.276
	4				0.487	0.310	0.213	0.522	0.121	0.164	0.295
	5					0.486	0.261	0.461	0.134	0.198	0.157
	6						0.162	0.465	-0.080	0.324	0.066
	7							0.147	-0.117	0.321	0.001
	8								0.071	0.474	0.177
	9									0.129	0.224
	10										0.202

(Source: www.ncbi.nlm.nih.gov)

- (a) Which expert has the least agreement with expert 6?

(1)

- (b) Which two experts have the greatest agreement in their ratings?
Give a reason for your answer.

(2)

(Total for Question 14 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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