



GCSE STATISTICS 8382/2H

Higher Tier Paper 2

Mark scheme

June 2025

Version: 1.0 Final



Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Statistics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
[a, b)	Accept values $a \leq \text{value} < b$
3.14...	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

Questions which ask students to show working

Instructions on marking will be given but usually marks are not awarded to students who show no working.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Continental notation

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Q	Answer	Mark	Comments
1	50%	B1	
	Additional Guidance		
	Do not accept 0.5 or $\frac{1}{2}$		

Q	Answer	Mark	Comments
2	$2.5 = \frac{80}{\text{total population}} \times 1000$ or $\text{total population} = \frac{80}{2.5} \times 1000$	M1	
	32 000	A1	

Q	Answer	Mark	Comments
3	$\frac{13}{500}$	B1	oe fraction, decimal or percentage
	Additional Guidance		
	Ignore attempts to simplify/convert to another format unless it is not a probability		

Q	Answer	Mark	Comments
4	$\frac{40}{200}$ and $\frac{30}{200}$ or $\frac{30}{200} \times 40 = 6$	M1	oe
	$\frac{3}{100}$	A1	oe fraction, decimal, percentage
	Additional Guidance		
	$\frac{70}{200}$ implies $\frac{40}{200}$ and $\frac{30}{200}$		M1

Q	Answer	Marks	Comments
5(a)	(All) the people (of working age) who live on St Mary's	B1	oe must reference living on the island
	Additional Guidance		
	Every person living there / People of the island		B1
	The whole of the island 1700 people		B1
	Everyone who works/has a job on St Mary's / The people on/in St Mary's		B0
	Population of St Mary's		B0
	Every person in the Isles of Scilly		B0
	(All) 1700		B0

Q	Answer	Marks	Comments
5(b)(i)	Embarrassment or Not wanting to say how old they are or Personal question	B1	oe
	Additional Guidance		
	(Age is) sensitive information / private / it's invasive		B1
	It's rude/inappropriate/offensive to ask age		B1
	It's rude/inappropriate/offensive		B0
	Too specific because it should have options		B0
	They can't answer the question		B0
	They don't wish to answer / don't like the question (if seen with a B1 answer, do not withhold the mark)		B0

Q	Answer	Marks	Comments
5(b)(ii)	Have grouped ages as options	B1	oe
	Additional Guidance		
	If answer mentions grouping ages, any suggested options need to be exclusive		
	If answer does not mention grouping ages, any suggested options need to be exclusive and exhaustive (or implied by etc)		
	Anonymous collection		B1
	Accept “use random response technique” to imply anonymous collection		B1
	Have tick boxes for different age groups		B1
	Have tick boxes		B0
	State responses are confidential / explain why she needs their age		B0
	Reference to whole questionnaire		B0
	Hand out more questionnaires to start with (could give more respondents but won't reduce non-responses)		B0
	Offer an incentive for completing the questionnaire		B0

Q	Answer	Marks	Comments									
5(c)	Method A named as convenience/opportunity (sampling) and any disadvantage given about convenience sampling	B2	B1 Method A named as convenience/opportunity (sampling) or any disadvantage given about the described Method A									
	Method B named as random (sampling) and any disadvantage given about random sampling	B2	B1 Method B named as random (sampling) or any disadvantage given about the described Method B									
	Method A chosen with advantage given for convenience sampling or Method B chosen with advantage given for random sampling	B1										
	Additional Guidance											
	<table><tr><td></td><td>Disadvantage</td><td>Advantage</td></tr><tr><td>A</td><td>Unrepresentative, only one time, only in one place, most people at work, probably/likely biased, may not live there</td><td>Quick, easy, cheap, efficient</td></tr><tr><td>B</td><td>Takes a long time/more work, more expensive, some people may not be accessible, needs a sampling frame</td><td>Probably not/unlikely biased, reduces bias, everyone has equal chance of being chosen, more representative</td></tr></table>				Disadvantage	Advantage	A	Unrepresentative, only one time, only in one place, most people at work, probably/likely biased, may not live there	Quick, easy, cheap, efficient	B	Takes a long time/more work, more expensive, some people may not be accessible, needs a sampling frame	Probably not/unlikely biased, reduces bias, everyone has equal chance of being chosen, more representative
		Disadvantage	Advantage									
	A	Unrepresentative, only one time, only in one place, most people at work, probably/likely biased, may not live there	Quick, easy, cheap, efficient									
	B	Takes a long time/more work, more expensive, some people may not be accessible, needs a sampling frame	Probably not/unlikely biased, reduces bias, everyone has equal chance of being chosen, more representative									
	Do not award the final B1 with a contradiction seen											
	'At random' does not imply the name of Method B											
May be biased / could be biased (if seen with a B1 answer, do not withhold the mark)		B0										
Biased / very biased / non-biased / unbiased		B0										
Mention of people not wanting to answer		B0										
Accurate or inaccurate		B0										

Q	Answer	Marks	Comments
5(d)	$(5 \times 0) + 15 \times 2 + 25 \times 3 + 35 \times 14 + 45 \times 6$ or 865	M1	oe condone 1 missing or incorrect product allow all working to be in thousands
	34 600 or 34.6 thousand or 35 000 or 35 thousand with M1 seen	A2	A1 35 with 865 seen or 34.6 A1ft ft their 34.6 into thousands

Q	Answer	Marks	Comments
5(e)	Points plotted at (5, 3), (15, 12), (25, 9), (35, 1) and joined by straight lines	B3	tolerance half a square
			B2 3 correct points plotted and joined with straight lines
			or
			all points correct but not joined with straight lines
			or
			all heights correctly plotted at a consistent but incorrect boundary and joined with straight lines
			or
			all heights correctly plotted at a consistent but incorrect boundary but not joined with straight lines
	Additional Guidance		
	Accept the coordinate (45, 0) plotted		
	Ignore anything before first plot and after last plot and ignore first and last plots joined to each other or the axes. Ignore histogram with frequency polygon		
	Mark intention of straight lines and condone dotted lines		
	Histogram drawn with no sign of joining the middles		Max B1

Q	Answer	Marks	Comments
5(f)	Two correct comparisons	B2ft	ft their frequency polygon in (e) B1ft one correct comparison eg modal class in Hugh Town is greater than in Old Town or on average/generally salaries in Hugh Town are greater (than in Old Town) or Old Town has higher frequencies for the smallest two class intervals or the highest salary is in Hugh Town or most people in Hugh Town earn more than £30 000 compared to most people in Old Town earn less than £30 000 or the range of the salaries could be the same (cannot tell)
	Additional Guidance		
	Do not accept contradictory responses		
	Do not award both marks for the same statement written twice, even if one is the “inverse” of the other		
	Skew for Hugh Town is negative but skew for Old Town is positive		B1
	Old Town has people earning less than £10 000 and Hugh Town doesn't		B1
	The estimated mean for OT is £18 200 which is less than the mean for HT		B1
	Old Town has 10 more people earning between £10 000 and £20 000		B1
	There are more in Old Town earning £10 000 to £20 000 than in Hugh Town		B1
	There are more in Old Town earning £10 000 to £20 000 (not necessarily comparing to Hugh Town)		B0
	People in Old Town earn less than people in Hugh Town		B0
	Most people in Old Town earn less than £20 000 (not a comparison)		B0
	Mode in Old Town £10-20 thousand, mode in Hugh Town £30-40 thousand		B0

Q	Answer	Marks	Comments
5(g)	Alternative method 1		
	Thea's data and a valid reason	B1	eg it's more up to date
	Alternative method 2		
	Council's data and a valid reason	B1	eg (more likely to) come from a larger/wider sample
	Additional Guidance		
	Any mention of honesty or lying	B0	
	Reasons for Alt 1	B1	
	More recent / more specific / more relevant	B1	
	Because it's primary data (so likely to be more accurate)	B1	
	Reasons for Alt 2	B0	
	Council is a reliable source	B0	
	May require payment	B0	
	Council has more money/resources/data	B0	

Q	Answer	Mark	Comments
6(a)	Valid explanation	B1	eg because it is a sensitive/personal topic or because the company can't tell who answered the question and you just answered yes
	Additional Guidance		
	People may not want to say if they have done something illegal		B1
	People may be worried about consequence of saying they have illegally downloaded software		B1
	More likely to be honest		B1
	They may not be honest		B1
	To make sure results are anonymous		B0
	To make sure results are accurate (with no further explanation)		B0

Q	Answer	Mark	Comments
6(b)	Alternative method 1 - percentages		
	0.5×200 or 100	M1	oe
	20% and No	A1	oe
	Additional Guidance		
	20% and Yes		M1A0
	Alternative method 2 - people		
	0.5×200 or 100	M1	oe
	130 and No or 30 and 20 and No	A1	

Q	Answer	Mark	Comments
7(a)	Qualitative	B1	

Q	Answer	Mark	Comments
7(b)(i)	Census	B1	

Q	Answer	Mark	Comments
7(b)(ii)	Suitable advantage	B1	eg (because a census will give) more reliable results
	Suitable disadvantage	B1	eg (a census will be) more time consuming
	Additional Guidance		
	Ignore non-contradictory comments with correct comments		
	Advantage: Completely/More accurate (representation of population)	B1	
	Advantage: Accurate	B0	
	Disadvantage: More expensive	B1	
	Disadvantage: May be too much data to process	B1	
	Disadvantage: May not be possible to collect data from whole population	B1	
	Will get data on/represents the whole population (restating the question)	B0	
	Harder to do	B0	
	Better than sampling	B0	

Q	Answer	Mark	Comments
7(c)(i)	A list/database/register of all students (available when the survey is completed)	B1	
	Additional Guidance		
	All the students at the school	B0	
	The school register	B0	

Q	Answer	Mark	Comments
7(c)(ii)	Valid reason	B1	eg they would need to have more than ten students with the same surname to (possibly) be chosen or two students with the same surname will be close to each other in the list, so if one is chosen the other won't be
	Additional Guidance		
	Students would be next to each other, then every 10 th person would be chosen		B1
	Students would be next to each other		B0

Q	Answer	Mark	Comments
7(d)(i)	To show whether the changes are due to the homework being on paper or something else	B1	oe
	Additional Guidance		
	So the impact of extraneous variables can be seen		B1
	To be able to compare the online homework group with something		B1
	To compare data / have something to compare to		B1
	To see the difference between those completing paper and online homework		B1
	To make sure results are fair		B0
	To make sure results are accurate		B0
	To keep one thing the same		B0

Q	Answer	Mark	Comments
7(d)(ii)	The control group completed more of the homework, so the data do not support the hypothesis.	B2	B1 comment on control group without conclusion about the hypothesis
	Additional Guidance		
	Quoted figures must be correct		
	Condone reference to Group B/online to mean the control group and Group A/paper-based homework to mean the experimental group		
	Does not support the hypothesis because students completing homework on paper completed less		B2
	The control group did more homework		B1
	The control group completed 8% more homework		B1
	The control group did better		B0
	Can't tell because numbers are similar		B0

Q	Answer	Mark	Comments
8(a)	25% outside the circles and $(30\% + 62\% + 25\%) - 100\%$ or 17% and 13% in Joke and 45% in Cake	B3	oe fraction or decimal B2 for 3 correct % or equivalent or for all correct percentage values in the Venn in correct positions without the % B1 for 1 or 2 values correct with or without the %

Q	Answer	Mark	Comments
8(b)	0.8 identified as incorrect	B1	eg she has worked out 80% rather than 8% or should have calculated 0.08×300
	Added the expected profit and the expected loss	B1	eg she should have done $\text{£}358.80 - \text{£}108$ or should be $0.75 - 1.2(0)$ SC1 statement that profit should be $\text{£}348$

Q	Answer	Mark	Comments
9(a)	Identify $4000 \leq n < 6000$ as class containing median	M1	can be indicated by identifying 4000 as the lower bound in formula, or 6000 as the upper bound
	$4000 + \left(\frac{45-39}{28} \times 2000 \right)$ or $6000 - \left(\frac{77-45}{28} \times 2000 \right)$ or $4000 + \left(\frac{45.5-39}{28} \times 2000 \right)$ or $6000 - \left(\frac{77-45.5}{28} \times 2000 \right)$	M1dep	
	4428 or 4429 or 4464 or 4465	A1	Accept 4428.571.... or 4464.285...
	Additional Guidance		
	Numbers 428(.57...) or 1571(.42...) or 464(.28...) or 1535(.71...) with no incorrect working		SC2

Q	Answer	Mark	Comments
9(b)(i)	$\frac{3(6722 - 5230)}{3340}$	M1	oe
	1.34(011976)	A1	oe condone 1.3 with correct workings

Q	Answer	Mark	Comments
9(b)(ii)	Positive	B1ft	ft from their answer for 9(b)(i)
	Correct interpretation of their skew in context	B1ft	ft from their answer for 9(b)(i)
	Additional Guidance		
	Reason given must match the type of skew given		
	Positive and there are few days with a very high number of visitors		B1B1
	Positive and most days have a low number of visitors		B1B1
	Positive and on most days there are fewer visitors than the mean number of visitors		B1B1
	Positive and the mean number of visitors is greater than the median number of visitors		B1B1
	Negative and negative value in 9(b)(i) and there are a few days with a very low number of visitors		B1ftB1ft
	Negative and negative value in 9(b)(i) and most days have a high number of visitors		B1ftB1ft
	Positive and on most days there are more visitors than the mean number of visitors		B1B0
	No skew and 0 for 9(b)(i) and the median and mean number of visitors is similar		B1ftB1ft
	No skew and 0 for 9(b)(i) and there are similar number of days with high and low numbers of visitors		B1ftB1ft

Q	Answer	Marks	Comments
10(a)	$23 \div 5 (= 4.6)$ or any correct scaling on vertical axis using frequency density eg one or more points correctly marked in the scale	M1	may be seen on graph may be implied by a single correct frequency or bar drawn with the correct height
	$10 \times \text{their } 1.1$ or $15 \times \text{their } 0.6$	M1	ft their 1.1 and their 0.6 from their scale using frequency density 11 or 9 implies M1M1
	frequency = 11 for $20 \leq w < 30$ in table and frequency = 9 for $55 \leq w < 70$ in table	A1	
	$37 \div 5 (= 7.4)$ or $31 \div 5 (= 6.2)$ or $20 \div 10 (= 2)$	M1	check table implied by at least one bar of correct height using frequency density tolerance half a square
	Complete correct histogram including a correct vertical scale	A1	tolerance half a square
	Additional Guidance		
	Do not allow a frequency scale		

Q	Answer	Mark	Comments
10(b)	No and a valid reason	B1	eg the area of the bars (represent frequencies which) enables the distribution to be described
	Additional Guidance		
	All class widths being equal may cause some groups to be too big or too small to be accurately represented.	B1	
	Yes and any reason	B0	
	The distribution is the shape of the histogram	B0	
	Size of the class widths doesn't affect the shape	B0	

Q	Answer	Mark	Comments
11(a)	A valid reason including reference to the proportion and total number of people	B1	eg a comparative pie chart shows both size and proportion of population
	Additional Guidance		
	Condone percentage of people to imply proportion of people		
	Just comment on comparing proportion		B0
	Just comment on comparing size		B0
	Easy to compare		B0
	They represent the population		B0

Q	Answer	Mark	Comments
11(b)	Alternative method 1		
	$\frac{(\pi)4^2}{(\pi)6^2} = \frac{x}{90}$ or $\frac{4^2}{6^2} (= 0.444\dots)$ or $(90 \div) \frac{6^2}{4^2}$	M1	oe accept any letters
	40	A1	
	Alternative method 2		
	Ratio of people in town A to town B shown as 4:9	M1	oe
	40	A1	
	Additional Guidance		
	SC1 for 202.5, 202 or 203		

Q	Answer	Mark	Comments
11(c)	$\frac{[82, 86]}{360} \times 90$	M1	oe
	[20.5, 21.5] and No or [20.5, 21.5] and there are more members of swimming club in town B	A1	oe

Q	Answer	Mark	Comments
12	12 and 8 and Team A has less consistent results/ Team B has more consistent results	B2	oe B1 (33 – 21 =) 12 or (33 – 25 =) 8
	Additional Guidance		
	Must be in context		

Q	Answer	Mark	Comments
13(a)(i)	The point doesn't fit with the other data	B1	oe
	Additional Guidance		
	May have been recorded incorrectly		B1
	It doesn't match the pattern of the rest of the data		B1
	It may affect the average		B1
	It may skew the data		B1
	It would skew the data		B0
	It may affect the data / calculations / accuracy		B0
	The data are wrong		B0
	Someone with that many subscribers cannot have that many views		B0

Q	Answer	Mark	Comments
13(a)(ii)	The point can still be valid data or Valid reason in context for why the point may be an outlier eg the creator could have had a video go viral	B1	oe
	Additional Guidance		
	May have been linked to from a popular website		B1
	May have had their video on other more popular website (eg TikTok)		B1
	May have embedded videos so people can't subscribe easily		B1
	May have sent out video via a mailing list		B1
	If it is a genuine piece of data it may/will affect accuracy		B1
	May be a popular creator		B0

Q	Answer	Mark	Comments
13(b)	Indicates Number of subscribers and (Number of subscribers) is shown on x -axis	B1	
	Additional Guidance		
	Indicate Number of views and any reason		B0

Q	Answer	Mark	Comments
13(c)(i)	Correctly drawn regression line: • Straight • From x values of 50 to 225 • Passes through (50,[8000,16 000]) and (225,[140 000, 148 000])	B2	B1 at least three correct points plotted but no line
	Additional Guidance		
	For the regression line, mark intention to be straight		

Q	Answer	Mark	Comments
13(c)(ii)	Acceptable reason	B1	eg extrapolation (is unreliable) or there is no similar data in the data set
	Additional Guidance		
	It is outside the range of the data		B1
	The pattern may not continue		B1
	The graph does not go that far		B0
	Subscribers and views aren't (perfectly) correlated		B0

Q	Answer	Mark	Comments
13(c)(iii)	Valid explanation	B1	eg for every (additional) subscriber there are (approximately) 750 additional views (that year)
	Additional Guidance		
	Increase in subscribers means an increase in views		B0
	Increase in views per subscriber		B0
	Positive correlation		B0

Q	Answer	Mark	Comments
13(c)(iv)	Alternative method 1		
	$58\,000 = 750n - 25\,800$	M1	
	$n = \frac{58\,000 + 25\,800}{750}$ or 111.73333...	M1dep	oe
	25(.733...) or 26	A1	
	Alternative method 2		
	$750 \times 86 - 25\,800$ or 38 700	M1	oe
	$(58\,000 - \text{their } 38\,700) \div 750$	M1dep	oe
	25(.733...) or 26	A1	

Q	Answer	Mark	Comments
13(c)(v)	Accurate, because 0.92 / it is close to 1	B1	oe
	Additional Guidance		
	Accept “quite accurate” or “very accurate” etc		
	Accurate, because there is a strong positive correlation		B1
	Accurate, because there is a strong correlation		B0
	Accurate because a high PPMCC value		B1
	0.92 is close to 1		B0

Q	Answer	Mark	Comments
13(d)	$1 - \frac{6 \times 198}{20(20^2 - 1)}$	M1	oe
	0.85...	A1	
	Additional Guidance		
	Ignore incorrect rounding after correct answer seen		
	Do not accept 0.8 or 0.9 if no other answer seen		

Q	Answer	Mark	Comments
13(e)	For Pearson's Change indicated and there is a change in one point / it will reduce (the PMCC)	B1	
	For Spearman's, No change indicated and there is no change in rank	B1	accept 'increase' for 'change'

Q	Answer	Mark	Comments
14	No or Cannot tell and a valid reason	B1	eg the students with the lower total marks may have done better on Test 1 or Cannot tell can be implied by reason if all boxes are blank
	Additional Guidance		
	If No and an example is given, the calculation must support the argument		
	Tick in Yes		B0
	The higher weighted mean score could have gained more marks on Test 1		B1
	We don't know the individual scores		B0
	The larger weighted mean scores means a greater score on each test		B0

Q	Answer	Mark	Comments
15	Alternative method 1 – with notation		
	$\frac{2}{5} = \frac{P(A \text{ and } B)}{P(B)}$ or $\frac{1}{4} = \frac{P(A \text{ and } B)}{P(A)}$	M1	
	$\frac{2}{5} = \frac{P(A \text{ and } B)}{P(B)}$ and $\frac{1}{4} = \frac{P(A \text{ and } B)}{P(A)}$	M1dep	
	$\frac{2}{5} \div \frac{1}{4}$ or $\frac{P(A)}{P(B)} = \frac{P(A B)}{P(B A)}$	M1dep	oe fraction, decimal or percentage dep on M1M1
	$\frac{8}{5}$	A1	SC3 $\frac{5}{8}$

15	Alternative method 2 – without notation		
	$\frac{2}{5} = \frac{x}{B}$ or $\frac{1}{4} = \frac{x}{A}$	M1	oe
	$x = \frac{2B}{5}$ or $x = \frac{A}{4}$	M1dep	oe
	$\frac{2B}{5} = \frac{A}{4}$	M1dep	oe dep on M1M1
	$\frac{8}{5}$	A1	SC3 $\frac{5}{8}$
	Alternative method 3 – Venn diagram		
	Venn diagram with 2 in intersection with either 6 in A only or 3 in B only	M1	oe
	Venn diagram with 2 in intersection with 6 in A only and 3 in B only	M1dep	oe
	$\frac{8}{11} \div \frac{5}{11}$ or $P(A) = \frac{8}{11}$ and $P(B) = \frac{5}{11}$	M1dep	oe fraction, decimal or percentage dep on M1M1
	$\frac{8}{5}$	A1	SC3 $\frac{5}{8}$
	Additional Guidance		
	$\frac{8}{5}$ from incorrect Venn diagram/workings	M0M0M0A0	