



Pearson

Mark Scheme (Results)

Summer 2017

Pearson Edexcel Level 1 Award
In Statistical Methods (AST10)

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- 1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- 2 Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- 3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- 4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- 5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- 6 Mark schemes will indicate within the table where QWC is being assessed. The strands are as follows:
 - i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labeling conventions.
 - ii) *select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.
 - iii) *organise information clearly and coherently, using specialist vocabulary when appropriate.*
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

7 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

If there is no answer on the answer line then check the working for an obvious answer.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9 Probability

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

Guidance on the use of codes within this mark scheme

M1 – method mark

A1 – accuracy mark

B1 – Working mark

C1 – communication mark

QWC – quality of written communication

oe – or equivalent

cao – correct answer only

ft – follow through

sc – special case

dep – dependent (on a previous mark or conclusion)

indep – independent

isw – ignore subsequent working

awrt – answer which rounds to

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Question	Working	Answer	Mark	Notes
1				
(a)		7	1	B1 cao
(b)		Bar drawn to frequency of 4	1	B1 Bar drawn to frequency of 4(condone any width)
(c)		Car	1	B1 cao
(d)		25	1	B1 cao
2				
(a)		4	1	B1 cao
(b)(i)		22	2	B1 for 22 or ft their key
(ii)		9		B1 for 9 or ft their key
(c)		Two squares and $\frac{3}{4}$ of square	1	B1 for Two squares and $\frac{3}{4}$ of square oe or or ft their key
3				
(a)		Certain	1	B1 cao
(b)		Impossible	1	B1 cao
(c)		Cross marked at 0.5	1	B1 for Cross marked at 0.5
(d)		Cross marked at $\frac{1}{6}$	1	B1 for Cross marked at $\frac{1}{6}$

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Question	Working	Answer	Mark	Notes				
4		152	1	B1 cao				
		Eve	1	B1 cao				
		Farhan	1	B1 cao				
		3	1	B1 cao				
5		<table border="1"> <thead> <tr> <th>Sport</th> <th>Tally/frequency</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Sport	Tally/frequency			2	M1 for data collection sheet with column/row labelled sport or a list of at least 3 sports A1 for column/row labelled tally/frequency/total oe
Sport	Tally/frequency							
6		4	1	B1 cao				
		Water	1	B1 cao				
		20	1	B1 cao				
7	(F,K) (F,H) (S,P) (S,K) (S,H) (R,P) (R,K) (R,H)	8 correct combinations	2	B2 for correct outcomes listed (No repeats) (B1 for 4 or 5 or 6 or 7 outcomes listed and ignore repeats)				
8		0.59	2	M1 for 1- 0.41 A1 for 0.59 oe				

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Question	Working	Answer	Mark	Notes
9	(a)	74	1	B1 cao
	(b)	Thu	1	B1 cao
	(c)	15	1	B1 cao
	(d)	Bars Sarah 20 Ravina 35	2	B2 for 2 fully correct bars (B1 for 1 fully correct bar or 2 bars at correct height with incorrect shading, ignore width and order of the bars)
10	(a)	$\frac{7}{20}$	1	B1 for $\frac{7}{20}$ oe
	(b)	$\frac{29}{60}$ or $\frac{36}{80}$	1	B1 for $\frac{29}{60}$ oe or $\frac{36}{80}$ or ft their part (a)
	(c)	Sunday More trials	2	B2 cao (B1 for Sunday with an attempt at a reason)
11	(a)	$\frac{8}{15}$	2	M1 for $\frac{X}{15}$ where $X < 15$ or $\frac{8}{Y}$ where $Y > 8$ A1 for $\frac{8}{15}$ oe
	(b)	$\frac{7}{15}$	2	M1 for $\frac{(3+4)}{15}$ or $1 - \frac{8}{15}$ A1 for $\frac{7}{15}$ allow ft

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Question	Working	Answer	Mark	Notes
12	(a)	1,1,1,2,2,6,9,11,12	2	M1 for correctly ordering the number of bites A1 cao
	(b)	$45 \div 9$	2	M1 for $(6+1+1+\dots)/9$ A1 cao
	(c)	11	2	M1 for $12 - 1$ A1 cao
	(d)(i)	Mean for India is less than mean for South Africa	2	B1 for Mean for India is less than mean for South Africa or ft '5' oe
	(ii)	Range for India is greater than the range for South Africa		B1 for Range for India is greater than the range for South Africa or ft '11' oe
13	(a)	66	1	B1 cao
	(b)	41	2	M1 for 97 and 56 seen together A1 cao
	(c)	$\frac{3}{25}$	1	B1 for $\frac{3}{25}$ oe
14	(a)	6,5,6,7,6	3	M1 (for using tallies or) at least one correct frequency A1 for 3 correct frequencies (or tallies) A1 for 6,5,6,7,6
	(b)	4	1	B1 for 4 or ft from their table
	(c)	92	2	M1 for $(1 \times '6' + 2 \times '5' + 3 \times '6' + 4 \times '7' + 5 \times '6')$ A1 for 92

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Question	Working	Answer	Mark	Notes
15		22	1	B1 cao
(a)				
(b)		14,6 9,15,47 21	3	B3 cao (B2 for 6 or 15 correct) (B1 for 9 or 14 or 21 or 47 correct)
(c)		$\frac{32}{80}$	2	M1 for $\frac{{}^{(9+23)}}{80}$ A1 for $\frac{32}{80}$ oe or ft their two-way table and the answer is a probability.
16		2 aspects identified	2	B2 for 2 aspects from 1. Non-linear scale (on vertical axis) 2. Bars different sizes 3. Missing label on horizontal axis/ horizontal axis not labelled 4. No zero 5. No Title B1 for one correct aspect
17		0.61	4	M1 for $0.37 + 0.24$ A1 for 0.61 oe
(i)				
(ii)		0.39		M1 for $1 - '0.61'$ oe (i) must be a probability A1 for 0.39 oe or ft (i)
18		2 aspects	2	B2 for 2 correct aspects from 1. Labels too vague 2. Non-exhaustive response boxes 3. No time frame

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Question	Working	Answer	Mark	Notes
19		Upwards	1	B1 for upwards oe
(a)				
(b)		1430	2	M1 for 350 + 450 + 630 A1 for 1430
(c)		530 to 700	1	B1 in the range 530 to 700
20		3 points plotted correctly	2	B2 correctly plotting points at (3.0,11000), (3.6,10000) and (4.1,8000) (B1 for correctly plotting one point)
(a)				
(b)		Negative	1	B1 for negative
21	Angles 90,120 and 150	Pie chart	3	M1 for at least one correct angle calculated or one correct angle drawn in the pie chart A1 for all angles correctly drawn A1 for correct labels in 3 sectors

