

Mark Scheme (Results)

Summer 2015

Pearson Edexcel Level 1 Award  
in Statistical Methods (AST10)

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## NOTES ON MARKING PRINCIPLES

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

### **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

cso – correct solution 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

PAPER: AST10_01					
		Working	Answer	Mark	Notes
1	(a)		60	1	B1 cao
	(b)		Tuesday	1	B1 cao
	(c)		55	2	M1 for $85 - 30$ or $10 + 20 + 20 + 5$ or $2.75 \times 20$ oe A1 cao
5	(a)		9 male, 6 female	2	M1 for 9 or 6 or '9' + '6' = 15 A1 for 9 male and 6 female
	(b)		male	1	B1 for male or ft their table
3	(a)		529	1	B1 cao
	(b)		F	1	B1 cao
	(c)		13.5	1	B1 cao
	(d)		Intel	1	B1 cao
4	(ai)		Certain	1	B1 cao
	(aii)		Impossible	1	B1 cao
	(b)		Unlikely marked	1	B1 for cross marked in region $0 < p < 0.5$

PAPER: AST10_01					
		Working	Answer	Mark	Notes
5	(a)		Two correct comparisons	2	B2 for two correct comparisons, eg same number of males and females like Italian the best oe (B1 for one correct comparison)
	(b)		21	2	M1 for $84 \div 4$ or $84 \times 90 \div 360$ oe A1 cao
6	(a)		Yes with correct reason	1	B1 for yes with correct reason, eg more white or 4 white but 3 black oe
	(b)		$\frac{3}{7}$	2	M1 for $\frac{n}{7}$ , $n \leq 7$ or $\frac{3}{m}$ , $m \geq 3$ A1 for $\frac{3}{7}$ oe or 0.42 – 0.43
7	(a)		Frequency table	2	M1 for 2 or 3 correct tallies or frequencies from 9 toffee, 5 strawberry, 4 vanilla (ignore chocolate) A1 cao
	(b)		Bar chart	3	B1 for linear scale and ice cream labels M1 for at least 2 correct bars from their frequency table A1 for fully correct bars or fit their frequency table  NB ignore spacing between bars

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		Working	Answer	Mark	Notes
8	(a)		Data collection sheet	3	B1 for data collection sheet with columns or rows labelled heights and tallies or frequency M1 for at least 3 class intervals for heights (condone overlaps and/or omissions) A1 for fully correct data collection sheet
	(b)		173, 178 Girls' median height > boys' median height	3	M1 for correct order of data for boys or girls or 175 identified or 178 identified A1 for (boys =) 173 and (girls =) 178 A1 for correct comparison of their medians, eg girls' (median height) > boys' (median height) accept girls taller than boys
9	(a)		70 male and 80 female	1	B1 cao
	(b)		16, 29 12, 36 65, 150	3	B3 cao (B2 for 29 or 36 or 65 B1 for 150 or 12 or 16)
10	(a)		(H, 2), (H, 3), (H, 4), (H, 5), (H, 6), (T, 1), (T, 2), (T, 3), (T, 4), (T, 5), (T, 6)	2	B2 for correct outcomes ignore repeats (B1 for at least 7 correct outcomes including (H, 1))
	(b)		$\frac{1}{12}$	1	B1 for $\frac{1}{12}$ oe or ft part a
	(ci)		$\frac{2}{8}$	2	B1 for $\frac{2}{8}$ oe
	(cii)		$\frac{5}{8}$		B1 for $\frac{5}{8}$ oe



PAPER: AST10_01					
		Working	Answer	Mark	Notes
11	(a)		25	1	B1 cao
	(b)		112	1	B1 cao
	(c)		45	2	M1 for 149 – 104 or 104 and 149 written together A1 cao
12	(a)		2 correct reasons	2	B2 for 2 correct reasons from: 1. no time frame, eg per month 2. '0' omitted oe 3. 6+ ambiguous oe, accept 5 – 6 and 6+ overlapping oe (B1 for 1 correct reason)
	(b)		1	1	B1 cao
	(c)	0+12+16+15+8	51	2	M1 for '0 × 3' + '1 × 12' + '2 × 8' + '3 × 5' + '4 × 2' oe A1 cao (SC B1 for 54)
13	(a)		0	1	B1 cao
	(b)		Increases	1	B1 for increases oe
	(c)		8	2	M1 for $4 - ^{-}4 (= 8)$ or $^{-}4 - 4 (= ^{-}8)$ A1 cao
	(di)		Prediction shown	2	B1 for prediction shown, eg with cross marked at (0000, -2)
	(dii)		Comment + reason		B1 for a comment + correct reason, eg yes and same as previous day or no and pattern may not continue

PAPER: AST10_01					
		Working	Answer	Mark	Notes
14			3 correct reasons	3	B3 for 3 correct reasons from: 1. no title 2. time units omitted 3. no key (for 'Joe' and 'Mary') 4. numbers incorrect aligned (on vertical axis) 5. 'T' used twice (on horizontal axis) 6. Reversed shading for Friday  (B2 for 2 correct reasons B1 for 1 correct reason)
15	(a)		upwards	1	B1 for eg upwards oe
	(b)		(2011=) 63 and (2012=) 63 + correct comparison	3	M1 for $22 + 18 + 23 (=63)$ or $20 + 27 + 16 (=63)$ A1 for (2011=) 63 and (2012=) 63 A1 for correct comparison, eg same totals oe or ft their totals
16	(a)		10.6	2	M1 for $(7.5 + 4 + 10 + 8 + 16 + 14 + 14.5) \div 7$ or $74 \div 7$ A1 for 10.5 – 10.6
	(b)		21	2	M1 for $29 - 8$ or 8 and 29 seen together A1 cao
	(c)		Scatter graph	2	B2 cao (B1 for 4, 5 or 6 points correct)
	(d)		Positive	1	B1 for positive (correlation) accept the greater the rainfall the greater the number of hats sold oe or ft their scatter graph

PAPER: AST10_01					
		Working	Answer	Mark	Notes
17	(a)		0.7	2	M1 for $0.45 + 0.25$ A1 for 0.7 oe
	(b)		0.55	2	M1 for $1 - 0.45$ A1 for 0.55 oe
18	(a)		$\frac{3}{24}$	1	B1 for $\frac{3}{24}$ oe
	(b)		Reason	1	B1 for correct reason, eg needs more rolls oe
19	(a)		192	2	M1 for $64 \div (65 + 35 + 20) \times 360$ oe A1 cao
	(b)		96	2	M1 for '192' $\div 360 \times 180$ or $64 \div 120 \times 180$ or $64 \div 2 \times 3$ or $64 + 64 \div 2$ oe A1 cao

