CAMBRIDGE
International Education

Cambridge IGCSE™

STATISTICS **0479/02**

Paper 2 **For examination from 2027**

MARK SCHEME

Maximum Mark: 100

Specimen

This document has **8** pages.

Generic Marking Principles

All examiners must apply these general marking principles when marking candidate responses. Examiners must apply them alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme must also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptions for the question
- the specific skills defined in the mark scheme or in the generic level descriptions for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptions.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however, the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptions in mind.

MARK SCHEME NOTES

The following notes are intended to aid interpretation of mark schemes in general, but individual mark schemes may include marks awarded for specific reasons outside the scope of these notes.

Types of mark

M Method marks, awarded for a valid method applied to the problem.

A Accuracy mark, awarded for a correct answer or intermediate step correctly obtained. For accuracy marks to be given, the associated Method mark must be earned or implied.

B Mark for a correct result or statement independent of Method marks.

When a part of a question has two or more 'method' steps, the M marks are in principle independent unless the scheme specifically says otherwise; and similarly where there are several B marks allocated. The notation 'dep' is used to indicate that a particular M or B mark is dependent on an earlier, asterisked, mark in the scheme.

The symbol √ implies that the A or B mark indicated is allowed for work correctly following on from previously incorrect results. Otherwise, A and B marks are given for correct work only.

Abbreviations

AG answer given on question paper
awrt answer which rounds to
cao correct answer only
dep dependent
ft follow through after error
oe or equivalent
SC special case
soi seen or implied
www without wrong working

Question	Answer	Marks	Partial Marks
1	Qualitative	**3**	B1
	Quantitative continuous		B1B1

Question	Answer	Marks	Partial Marks
2(a)	The [30] students in the class	**1**	B1
2(b)(i)	21 15 09 10 28 02 (***B1*** for one error)	**2**	B2
2(b)(ii)	A systematic sample	**3**	M1
	with interval of 5		M1
	04 09 14 19 24 29		A1

Question	Answer	Marks	Partial Marks
3(a)	[Raashida] [Takala] 4 | 0 | 1 2 9 9 8 8 4 3 1 0 | 1 | 2 3 7 9 3 3 2 | 2 | 8 9 4 | 3 | 3 4 | 0 5 6 | 5 key: 0|1|2 means 10 [characters] for Raashida and 12 [characters] for Takala	**5**	
	Correct stem: 0, 1, 2, 3, 4, 5, 6		B1
	Suitable key for back-to-back stem-and-leaf diagram		B1
	Correct, equally spaced, ordered leaves (must be back-to-back) ***B2*** *for 1 error,* ***B1*** *for 2 errors*		B3
3(b)	An extreme value [65] is distorting the mean for Takala	**2**	B1
	Otherwise Raashida's messages are generally longer/median for Raashida is 18 whereas median for Takala is 15		B1

Question	Answer	Marks	Partial Marks
4(a)	Correct sectional bar heights (thousands may be missing) 2001: 4.6, 13.6, 15 2011: 4, 13.8, 15.4 2021: 5.2, 16.8, 19 ***B1ft*** *for 8 bar heights correct*	**4**	B2
	Linear scale from 0 to 19 000, labelled 'no of people' **oe**		B1
	Bars labelled 2001, 2011, 2021 and key/labelling for children, adults, seniors		B1
4(b)	Data suggests an increase in overall population	**2**	B1
	Consideration as to whether the increase is steady, e.g. not steady as smaller increase from 2001–2011/larger increase from 2011–2021 or steady as a (small) increase every 10 years or cannot tell if steady as data only taken every 10 years		B1

Question	Answer	Marks	Partial Marks
5(a)	Use of mean = $\Sigma x/n$	**4**	M1*
	$n = 31$		A1
	Use of correct formula for standard deviation or variance $138\,776/'31' - 66^2$ or $138\,776/'31' - (2046/'31')^2$		M1dep
	$\sqrt{(138\,776/31 - 66^2)}$		A1
5(b)	$(x - 66)/11.0 = (x - 60)/15$ **oe**	**2**	M1
	82.5		A1

Question	Answer	Marks	Partial Marks
6(a)	35%	**1**	B1
6(b)	0.8×0.5 **or** 0.8×0.3 **or** 0.2×0.4 **or** 0.2×0.25	**4**	M1
	$0.8 \times 0.5 \times 3$ [= 1.2] **or** 0.8×0.3 [$\times$ 1] [= 0.24] **or** $0.2 \times 0.4 \times 3$ [= 0.24] **or** 0.2×0.25 [$\times$ 1] [= 0.05]		M1
	'1.2' + '0.24' + '0.24' + '0.05'		M1
	1.73		A1

Question	Answer	Marks	Partial Marks
7(a)	*W* Mean = 11.96	**4**	B1
	SD = 0.82		B1
	X Mean = 29.6		B1
	SD = 8.2		B1
7(b)(i)	14.5 19.5 17 5 (***B1ft*** *for 2 or 3 correct values*)	**2**	B2
7(b)(ii)	Mean = 21.8	**2**	B1
	SD = 4.1		B1

Question	Answer	Marks	Partial Marks
8(a)	**EITHER** 2/3 × 15 [= 10] **oe**	**4**	M1
	80 – (7 + '10') **oe**		M1
	63		A1
	78.75(%) or 78.8(%)		A1
	OR 1/3 × 15 [= 5] **oe**		(M1
	80 – 22 + '5' **oe**		M1
	63		A1
	78.75(%) or 78.8(%) *If* ***M1*** *only scored,* ***SCB1*** *for answer 21.25(%) or 21.3(%)*		A1)
8(b)	40th value	**4**	B1
	10 +		M1
	('40' – 22)/(45 – 22) × (10.5 – 10)		M1
	10.4 **awrt**		A1
8(c)(i)	Whiskers to 4.6 and 13.7	**3**	B1
	Box to 9.6 and 11.0		B1
	A box and whisker diagram with '10.4' plotted correctly *if 0 marks scored,* ***SCB1*** *for 13.7 and 9.6 seen*		B1ft
8(c)(ii)	Trucks have [generally] greater fuel consumption [on average] **oe**	**2**	B1
	Variation in fuel consumption is the same for cars and trucks		B1

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Partial Marks</th></tr>
<tr><td rowspan="2">9(a)</td><td>Correct plots
B1 for 7 or 8 correct plots</td><td rowspan="2">3</td><td>B2</td></tr>
<tr><td>9 plots correctly joined with straight line segments</td><td>B1</td></tr>
<tr><td rowspan="2">9(b)</td><td>7 correct moving average values
<table><tr><th></th><th>Tuesday (Tu)</th><th>Thursday (Th)</th><th>Saturday (Sa)</th></tr><tr><td>Week 1</td><td></td><td>464</td><td>457</td></tr><tr><td>Week 2</td><td>454</td><td>450</td><td>453</td></tr><tr><td>Week 3</td><td>443</td><td>437</td><td></td></tr></table>***B1*** *for 3, 4, 5 or 6 correct moving average values*</td><td rowspan="2">3</td><td>B2</td></tr>
<tr><td>In the correct 7 places in the table</td><td>B1</td></tr>
<tr><td rowspan="3">9(c)</td><td>± (351 – ‘464’) or ± (343 – ‘450’) or ± (312 – ‘437’)</td><td rowspan="3">3</td><td>M1*</td></tr>
<tr><td>Sum of 3 appropriate differences ÷ 3 (allow ±)</td><td>M1dep</td></tr>
<tr><td>–115</td><td>A1</td></tr>
<tr><td rowspan="3">9(d)</td><td>7 correct plots vertically</td><td rowspan="3">3</td><td>B1ft</td></tr>
<tr><td>7 correct plots horizontally</td><td>B1</td></tr>
<tr><td>Suitable ruled trend line</td><td>B1ft</td></tr>
<tr><td rowspan="2">9(e)</td><td>Reading at Th Wk 4 + their (c)</td><td rowspan="2">2</td><td>M1</td></tr>
<tr><td>‘430’ – 115 = 315 (ft their trend line, ans. in range 300–330)</td><td>A1ft</td></tr>
<tr><td>9(f)</td><td>One from
• That the trend continues
• That the seasonal variation continues</td><td>1</td><td>B1</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Partial Marks</th></tr>
<tr><td>10(a)</td><td>There has been no change
in the price/cost of electricity
between 2018 and 2021
B1 *for two correct lines above*</td><td>2</td><td>B2</td></tr>
<tr><td rowspan="2">10(b)</td><td>Weights have not been used</td><td rowspan="2">2</td><td>B1</td></tr>
<tr><td>and weights not close to 1:1:1:1 oe</td><td>B1</td></tr>
<tr><td rowspan="3">10(c)</td><td>0.15/0.12 [× 100]</td><td rowspan="3">3</td><td>M1</td></tr>
<tr><td>125</td><td>A1</td></tr>
<tr><td>99</td><td>B1</td></tr>
<tr><td rowspan="3">10(d)(i)</td><td>22 × 113 + 36 × 108 + 8 × ‘125’ + 10 × ‘99’</td><td rowspan="3">3</td><td>M1</td></tr>
<tr><td>÷ (22 + 36 + 8 + 10) oe</td><td>M1</td></tr>
<tr><td>110.1 cao</td><td>A1</td></tr>
</table>

Question	Answer	Marks	Partial Marks
10(d)(ii)	**EITHER** Expend. in 2018 = 22 000 + 36 000 + 8000 + 10 000 [= 76 000]	**3**	M1*
	'110.1' × '76 000' ÷ 100		M1dep
	[$]84 000		A1
	OR (22 000 × 113 + 36 000 × 108 + 8000 × '125' + 10 000 × '99')		(M1*
	/100		M1dep
	[$]83 640		A1)
10(e)(i)	B and D	**1**	B1*
10(e)(ii)	because these have been accounted for in the calculation. ***SCB1*** *for B only or D only with correct reason*	**1**	B1dep

Question	Answer	Marks	Partial Marks
11(a)	Mutually exclusive events: A & D, B & C, C & D Independent events: A & B ***B2*** *for 1 error/omission* ***B1*** *for 2 errors/omissions*	**3**	B3
11(b)(i)	0	**1**	B1
11(b)(ii)	Use of P(A) × P(B) '3/8' × '2/7'	**2**	M1
	3/28 **oe**		A1
11(b)(iii)	[P(C) =] 3/8 × 5/7 [= 15/56] **oe**	**3**	B1
	Use of P(B) + P(C) 2/7 + '15/56'		M1
	31/56 **oe**		A1
11(c)	5/8 × 3/7 × 2/6 × 3 A product of three probs × 3	**3**	M1
	$n(n-1)(n-2)$ in the denominator		M1
	15/56 **oe**		A1
11(d)	'P(BBB from bag)' × 'P(WW from box)' (3/8 × 2/7 × 1/6 × 2/10 × 1/9)	**4**	M1
	P(BBB from bag) = 3/8 × 2/7 × 1/6		B1
	10 × 9 in the denominator		M1
	1/2520 **cao**		A1