



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Applied 2018

Marking Scheme

Mathematical Applications

Common Level

Note to teachers and students on the use of published marking schemes

Marking schemes published by the State Examinations Commission are not intended to be standalone documents. They are an essential resource for examiners who receive training in the correct interpretation and application of the scheme. This training involves, among other things, marking samples of student work and discussing the marks awarded, so as to clarify the correct application of the scheme. The work of examiners is subsequently monitored by Advising Examiners to ensure consistent and accurate application of the marking scheme. This process is overseen by the Chief Examiner, usually assisted by a Chief Advising Examiner. The Chief Examiner is the final authority regarding whether or not the marking scheme has been correctly applied to any piece of candidate work.

Marking schemes are working documents. While a draft marking scheme is prepared in advance of the examination, the scheme is not finalised until examiners have applied it to candidates' work and the feedback from all examiners has been collated and considered in light of the full range of responses of candidates, the overall level of difficulty of the examination and the need to maintain consistency in standards from year to year. This published document contains the finalised scheme, as it was applied to all candidates' work.

In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with their Advising Examiners when in doubt.

Future Marking Schemes

Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in a given year. The Chief Examiner in any given year has the responsibility to determine how best to ensure the fair and accurate assessment of candidates' work and to ensure consistency in the standard of the assessment from year to year. Accordingly, aspects of the structure, detail and application of the marking scheme for a particular examination are subject to change from one year to the next without notice.

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Structure of the marking scheme

Candidate responses are marked according to different scales, depending on the types of response anticipated. Scales labelled A divide candidate responses into two categories (correct and incorrect). Scales labelled B divide responses into three categories (correct, partially correct, and incorrect), and so on. The scales and the marks that they generate are summarised in this table:

Scale label	A	B	C	D
No of categories	2	3	4	5
5-mark scale	0,5	0, 2, 5	0, 2, 3, 5	0,2,3,4,5
10-mark scale		0, 5, 10	0, 3, 7, 10	0,3,6,8,10
15-mark scale			0, 3, 10, 15	

A general descriptor of each point on each scale is given below. More specific directions in relation to interpreting the scales in the context of each question are given in the scheme, where necessary.

Marking scales – level descriptors

A-scales (two categories)

- incorrect response (no credit)
- correct response (full credit)

B-scales (three categories)

- response of no substantial merit (no credit)
- partially correct response (partial credit)
- correct response (full credit)

C-scales (four categories)

- response of no substantial merit (no credit)
- response with some merit (low partial credit)
- almost correct response (high partial credit)
- correct response (full credit)

D-scales (five categories)

- response of no substantial merit (no credit)
- response with some merit (low partial credit)
- response about half-right (mid partial credit)
- almost correct response (high partial credit)
- correct response (full credit)

In certain cases, typically involving incorrect rounding, omission of units, or a misreading that does not oversimplify the work, a mark that is one mark below the full-credit mark may be awarded. This level of credit is referred to as *Full Credit –1*, and these types of errors are identified with an asterisk (*). Thus, for example, in Scale 10C, *Full Credit –1* of 9 marks may be awarded.

The only marks that may be awarded for a question part are those on the relevant scale, or *Full Credit –1*.

Summary of mark allocations and scales to be applied

Question 1	Question 2	Question 3	Question 4	Question 5
(a) 5C	(a) 5D	(a) 5D	(a) 5A	(a) 5B
(b) 5B	(b) 5B	(b) 10D	(b) 10D	(b) 10D
(c) 5B	(c) 10C	(c) 5B	(c) 5C	(c) 10C
(d) 5B	(d) 10C	(d) 10C	(d) 15C	(d) 15C
(e) 5B	(e) 10D	(e) 10C	(e) 5B	(e) 10C
(f) 5A	(f) 10D	(f) 10D	(f) 10B	
(g) 5C				
(h) 5C				
(i) 5C				
(j) 5B				

Model Solutions & Marking Notes

The model solutions for each question are not intended to be exhaustive – there may be other correct solutions. Any Examiner unsure of the validity of the approach adopted by a particular candidate to a particular question should contact his / her Advising Examiner.

Where the scheme refers to “work of merit”, examples are given of the standard acceptable as work of merit in that particular part.

In general, accept a candidate’s work in one part of a question for use in subsequent parts of the question, unless this oversimplifies the work involved.

Q1	Model Solution – 50 Marks	Marking Notes
(a)	$(2 \times 1.50) + (6 \times 1.20)$ $= 3 + 7.20$ $= [\text{€}] 10.20$	<p>Scale 5C (0, 2, 3, 5)</p> <p>Accept correct answer without work. Accept answer in euro without unit.</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Relevant use of 1.50 or 1.20 for example $1.50 + 1.20 = 2.70$ <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> $2 \times 1.50 = 3$ or $6 \times 1.20 = 7.20$ $6 \times 1.50 = 9$ and $2 \times 1.20 = 2.40$ <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> Correct answer in cent, but with no unit.
(b)	$120 \div 2.5 = 48$ [inches]	<p>Scale 5B (0, 2, 5)</p> <p>Accept correct answer without work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> Some relevant calculation (accept work with \times but not \pm)
(c)	6 hours and 40 minutes	<p>Scale 5B (0, 2, 5)</p> <p>Accept correct answer without work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> Work of merit, for example uses 1hour = 100 minutes answer = 6:80 or 7:20 Answer = 6 hours + any minutes
(d)	1.2 kg	<p>Scale 5B (0, 2, 5)</p> <p>Accept correct answer without work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> Answer between 1 and 1.5 Kg <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> Incorrect or no unit

Q1	Model Solution – 50 Marks	Marking Notes
(e)	$2 \cdot 1^3 = 9 \cdot 261 = 9 \cdot 3$ [1 D.P.]	<p>Scale 5B(0, 2, 5)</p> <p>Accept correct answer without work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Work of Merit for example $2.1 \times 2.1 = 4.41$ • Shows understanding of cubing $2.1 \times 2.1 \times 2.1$ • Finds cubed root = 1.28057 • Answer = $2.1 \times 3 = 6.3$ <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Incorrect or no rounding
(f)	€1, 50 cent, 20 cent, 10 cent	<p>Scale 5A (0, 5)</p> <p>Accept correct answer without work.</p> <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Correct answer with no or incorrect unit.
(g)	$2 \cdot 50 + (4 \times 0 \cdot 50)$ $= 2 \cdot 5 + 2 = [\text{€}] 4 \cdot 50$	<p>Scale 5C (0, 2,3, 5)</p> <p>Accept correct answer in euro without units.</p> <p>Accept correct answer without work</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Some relevant calculation involving 50c or €2.50 <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • $4 \times 50 = 2$ • Decimal point misplaced, otherwise correct • Fails to use 'special offer' answer = €5 <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Correct answer in cent, but with no unit
(h)	$4000 + 6 + 4 = 4010$ [m]	<p>Scale 5C (0, 2,3, 5)</p> <p>Accept correct answer without work.</p> <p>Accept correct answer without units.</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • One correct conversion to either km, m, or cm. <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct conversions but no addition <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Correct answer in kilometres or centimetres

Q1	Model Solution – 50 Marks	Marking Notes
(i)	$880 \times 1.5 = [\text{€}] 1320$ <p style="text-align: center;">OR</p> $880 \times 0.5 = 440$ $880 + 440 = [\text{€}] 1320$	<p>Scale 5C (0, 2,3, 5)</p> <p>Accept correct answer without work. Accept correct answer without units.</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Converts 50% to fraction or decimal • Any use of 100 • Mentions 150% • Answer = $880 \times 2 = \text{€}1760$ <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 880×0.5 or equivalent <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • 880×1.5 or equivalent
(j)	<p><i>Answer:</i> €300</p> <p><i>Working out:</i></p> $300 \times 1.17 = 351$ <p style="text-align: center;">OR</p> $300 \div 1.17 = 256.41 \dots$ <p style="text-align: center;">OR</p> <p><i>Reason:</i></p> <p>€1 = \$1.17, so €1 is worth more than \$1</p> <p style="text-align: center;"><i>or any other valid reason</i></p>	<p>Scale 5B (0, 2, 5)</p> <p>Note: For full credit must have € sign No credit for 300 with no unit and no workings</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Correct answer • Work of merit in workings

Q2	Model Solution – 50 Marks			Marking Notes																								
(a)	<table border="1"> <thead> <tr> <th>Item</th> <th>Inc. (€)</th> <th>Exp. (€)</th> </tr> </thead> <tbody> <tr> <td>Wages</td> <td>2100</td> <td>-</td> </tr> <tr> <td>Rent</td> <td>-</td> <td>1150</td> </tr> <tr> <td>Mobile</td> <td>-</td> <td>50</td> </tr> <tr> <td>TV & B.</td> <td>-</td> <td>60</td> </tr> <tr> <td>Child Benefit</td> <td>140</td> <td>-</td> </tr> <tr> <td>Bills</td> <td>-</td> <td>200</td> </tr> <tr> <td>Groceries</td> <td>-</td> <td>500</td> </tr> </tbody> </table>	Item	Inc. (€)	Exp. (€)	Wages	2100	-	Rent	-	1150	Mobile	-	50	TV & B.	-	60	Child Benefit	140	-	Bills	-	200	Groceries	-	500			<p>Scale 5D (0, 2, 3, 4,5)</p> <p>Accept correct answers without work.</p> <p>Note: Income and expenditure boxes can be used once only</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 or 2 correct entries <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 3 or 4 Correct entries <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 5 correct entries
Item	Inc. (€)	Exp. (€)																										
Wages	2100	-																										
Rent	-	1150																										
Mobile	-	50																										
TV & B.	-	60																										
Child Benefit	140	-																										
Bills	-	200																										
Groceries	-	500																										
(b)	<p>Income = $2100 + 140 = [€] 2240$</p> <p>Expenditure:</p> <p>= $1150 + 50 + 60 + 200 + 500$</p> <p>= $[€] 1960$</p>			<p>Scale 5B (0, 2, 5)</p> <p>Accept correct answer without work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Some correct addition of relevant numbers 																								
(c)	<p>(i) $2240 - 1960 = [€] 280$</p> <p>(ii) $\frac{280}{2240} \times 100 = 12.5 [\%]$</p>			<p>Scale 10C (0, 3, 7, 10)</p> <p>Accept correct answers without work.</p> <p>Accept correct answers without units [€ in (i) and % in (ii)]</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • (i) correct or work of merit in (ii), for example: uses 1960 as denominator, or any relevant use of 100 <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • (ii) correct but no work in part (i) • (i) correct and work of merit in (ii) 																								
(d)	<p>$1150 \times 1.06 = [€] 1219$</p> <p style="text-align: center;">OR</p> <p>$1150 \times 0.06 = 69$</p> <p>$1150 + 69 = [€] 1219$</p>			<p>Scale 10C (0, 3, 7, 10)</p> <p>Accept correct answer without work.</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit, for example: some relevant use of 100; relevant operation (including $\frac{100}{6}$) • Answer > €1150 <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Substantial work of merit, that is: uses 0.6, 0.006, or similar, and otherwise correct 																								

Q2	Model Solution – 50 Marks	Marking Notes												
(e)	<p>Answer: Yes</p> <p>Working out: Currently Paying: $(50 + 60) \times 12 = \text{€}1320$</p> <p>New offer: $140 \times 8 = \text{€}1120$</p>	<p>Scale 10D (0, 3, 6, 8, 10)</p> <p>Step 1: Calculate current cost Step 2: Calculate cost of new offer Step 3: Correct conclusion</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit for example $50+60 = 110$ <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 1 correct step <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct steps 												
(f)	<table> <thead> <tr> <th>Item</th> <th>Typical amount (€)</th> </tr> </thead> <tbody> <tr> <td>Biscuits</td> <td>2.49</td> </tr> <tr> <td>Grocery shopping</td> <td>249.50</td> </tr> <tr> <td>Jackpot</td> <td>2 495 000</td> </tr> <tr> <td>Car</td> <td>24 950</td> </tr> <tr> <td>Health insurance</td> <td>2495</td> </tr> </tbody> </table>	Item	Typical amount (€)	Biscuits	2.49	Grocery shopping	249.50	Jackpot	2 495 000	Car	24 950	Health insurance	2495	<p>Scale 10D (0, 3, 6, 8,10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 correct entry <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct entries <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 3 or 4 correct entries
Item	Typical amount (€)													
Biscuits	2.49													
Grocery shopping	249.50													
Jackpot	2 495 000													
Car	24 950													
Health insurance	2495													

Q3	Model Solution – 50 Marks	Marking Notes
(a)	18 k, 24 k, 20 k, 14 k	<p>Scale 5D (0, 2, 3, 4 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 correct entry <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct entries <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 3 correct entries <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • “k” omitted (18, 24, etc)
(b)	Trend graph completed correctly, in line with candidate’s answer from (a)	<p>Scale 10D (0, 3, 6, 8, 10)</p> <p>Tolerance $\pm 1k$</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 correct point <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct points <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 3 correct points • Draws correct bar chart <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Points not joined or joined incorrectly
(c)	<p>Work on graph: Graph continued with trend line going down from Sep value</p> <p style="text-align: center;">OR</p> <p>Reason: “The sales are going down from after July”</p> <p style="text-align: center;"><i>or any valid justification</i></p>	<p>Scale 5B (0, 2, 5)</p> <p>Accept any answer less than €14k</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Correct answer with no reason and with no work shown on graph • Relevant work on graph or reason given, but no or incorrect answer <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • “k” omitted, if a * has not already been applied for this in this question

Q3	Model Solution – 50 Marks	Marking Notes
(d)	(i) $6\text{ k} + 8\text{ k} + 18\text{ k} + 24\text{ k} + 20\text{ k} + 14\text{ k}$ $= [\text{€}] 90\text{ k}$ (ii) $90\text{ k} \div 6 = [\text{€}] 15\text{ k}$	Scale 10C (0, 3, 7, 10) Accept correct answers without work Accept answers in euro without unit. <i>Low Partial Credit</i> <ul style="list-style-type: none"> • (i) correct • Work of merit in (ii), for example: indicates division by 6, or finds the median (16k) <i>High Partial Credit</i> <ul style="list-style-type: none"> • (ii) correct but no or incorrect work in (i) • (i) correct and work of merit in (ii) <i>Full Credit –1</i> <ul style="list-style-type: none"> • “k” omitted (90 and 15), if a * has not already been applied for this in this question • Uses unrounded figures (Total $90405 \div 6 = 15067.50$)
(e)	$2 \div 1.25 = \text{€}1.60$	Scale 10C (0, 3, 7, 10) Accept correct answer without work <i>Low Partial Credit</i> <ul style="list-style-type: none"> • Mentions 125% or equivalent • Finds 25% of €2 = 50c <i>High Partial Credit</i> <ul style="list-style-type: none"> • $2 \div 125 = 0.016$ • Finds 25% of 2 and subtracts = 1.50 or finds 75% of 2 = 1.50

Q3	Model Solution – 50 Marks	Marking Notes
(f)	<p>A. $38 \times 20 \cdot 20 = 767 \cdot 60$</p> <p>B. $44 - 38 = 6$</p> <p>C. $20 \cdot 20 \times 1.5 = 30 \cdot 30$</p> <p>D. $6 \times 30 \cdot 30 = 181 \cdot 80$</p>	<p>Scale 10D (0, 3, 6, 8, 10)</p> <p>Accept correct answer without work</p> <p>Accept correct answer without units</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit towards 1 value, for example: one relevant calculation indicated • 1 correct entry <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct entries <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 3 correct entries <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Answers correct but ABCD not correctly identified

Q4	Model Solution – 50 Marks	Marking Notes
(a)	$3 + 2 = 5 \text{ m}$	<p>Scale 5A (0, 5) Accept correct answer without work. <i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Incorrect unit or no unit given
(b)	<p><i>Scaled diagram constructed correctly.</i> <i>Accept diagram without dotted lines,</i> <i>i.e. accept symmetrical pentagon</i> <i>(rather than rectangle and triangle).</i></p>	<p>Scale 10D (0, 3, 6, 8, 10) Tolerance $\pm 5 \text{ mm}$ and 5° Construction lines not needed <i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 correct measurement calculated or drawn • Freehand sketch • 2 or 3 correct angles constructed <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 2 or 3 correct sides constructed <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Rectangle or triangle fully correct
(c)	$x^2 = 4^2 + 2^2$ $x^2 = 20$ $x = \sqrt{20} = 4.47 \dots$ $x = 4.5 \text{ [m] [1 DP]}$	<p>Scale 5C (0, 2, 3, 5) Accept correct answer without units. No credit for measuring a side <i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • $a^2 = b^2 + c^2$ • 2^2 or 4^2 <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • $x^2 = 2^2 + 4^2$ • Correct answer with no supporting work <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Incorrect or no rounding
(d)	<p>Rectangle: $3 \times 8 = 24 \text{ [m}^2\text{]}$</p> <p>Triangle: $\frac{1}{2}(8)(2) = 8 \text{ [m}^2\text{]}$</p> <p>Total: $24 + 8 = 32 \text{ [m}^2\text{]}$</p>	<p>Scale 15C (0, 3, 10, 15) Accept correct answers without work Accept correct answer without units <i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit in finding area of rectangle or triangle, for example, correct formula • Adds incorrect area of rectangle and incorrect area of triangle to get total area • Finds perimeter of rectangle (22) and/or perimeter of triangle (based on answer from part (c)) <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 2 correct entries in table (relative to own work)

Q4	Model Solution – 50 Marks	Marking Notes
(e)	$32 \times 15 = 480 \text{ m}^3$	<p>Scale 5B (0, 2, 5)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Multiplies 15 by a number from part (d), other than the total area <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Incorrect unit or no unit given
(f)	$1 + 9(2) = 19$	<p>Scale 10B (0, 5, 10)</p> <p>Accept correct answer with no work.</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Answer = 20 or 21 • Writes part of correct sequence or sequence with common difference of 2

Q5	Model Solution – 50 Marks	Marking Notes
(a)	$\frac{3}{6}$ or $\frac{1}{2}$ or equivalent	<p>Scale 5B (0, 2, 5)</p> <p>Accept correct answer without work</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Correct number of favourable outcomes or correct number of total outcomes
(b)	<p>(i) $1 \times \frac{40}{100} = 0.4$ [g]</p> <p>(ii) $\frac{9}{40} \times 100 = 2.25 \times 100 = 22.5$ [g]</p> <p>(iii) $\frac{3.3}{60} \times 100 = 5.5$ [%]</p>	<p>Scale 10D (0, 3, 6, 8, 10)</p> <p>Accept correct answers without work</p> <p>Accept correct answers without units</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit in any part, for example: one relevant calculation indicated <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> • 1 part correct <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 2 parts correct
(c)	<p>Answer: Corn Flakes</p> <p><i>Working out:</i></p> <p>$18 \div 100 = 0.18$</p> <p>$11 \div 40 = 0.275$</p> <p style="text-align: center;">OR</p> <p>$11 \div 18 = 0.611 \dots$</p> <p>$40 \div 100 = 0.4$</p> <p style="text-align: center;"><i>or any other valid working out</i></p>	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • 1 relevant calculation • Correct answer with no supporting work or incorrect calculations <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Correct answer with 1 relevant calculation • Correct relevant calculation for each cereal, but no or incorrect answer

Q5	Model Solution – 50 Marks	Marking Notes
(d)	$600 \times 0.2 = 120$ $600 - (120 - 32) = 600 - 88 = [\text{€}] 512$	<p>Scale 15C (0, 3, 10, 15)</p> <p>Step1: Finds Gross Tax Step 2 : Applies Tax Credit Step 3: Finds Take Home Pay</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit for example $600 - 32$ • 1 step correct <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • 2 steps correct <p><i>Full Credit –1</i></p> <ul style="list-style-type: none"> • Correct answer in cent, but with no unit.
(e)	$3000 \times 1.05 = 3150$ $3150 \times 1.05 = [\text{€}] 3307.50$ <p style="text-align: center;">OR</p> $F = 3000(1 + 0.05)^2 = [\text{€}] 3307.50$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit, for example: Indicates 0.05 or 1.05 or equivalent; or compound interest formula • Finds simple interest (€300) <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Compound interest formula fully substituted • Compound interest formula incorrectly substituted but finished correctly • Finds total after year 1 (3150) • Finds total for simple interest (3300) • Uses 0.5, 0.005, or similar, but otherwise correct • Finds interest only = €307.50

Credit mark ranges

Candidates are awarded a credit from 0 to 10, inclusive, depending on the mark they are awarded. The mark ranges associated with each credit are shown below.

Mark Range	Credit
180 – 200	10
162 – 179	9
144 – 161	8
126 – 143	7
108 – 125	6
90 – 107	5
72 – 89	4
54 – 71	3
36 – 53	2
18 – 35	1
0 – 17	0

Bonus marks for answering through Irish

Bonus marks are applied as follows:

If the mark achieved is 150 or less, the bonus is 5% of the mark obtained, rounded **down**.

For instance, $138 \text{ marks} \times 5\% = 6.9 \Rightarrow \text{bonus} = 6 \text{ marks}$.

If the mark achieved is above 150, the following table applies:

Bunmharc (Mark achieved)	Marc Bónais (Bonus mark)	Bunmharc (Mark achieved)	Marc Bónais (Bonus mark)
151 – 153	7	174 – 180	3
154 – 160	6	181 – 186	2
161 – 166	5	187 – 193	1
167 – 173	4	194 – 200	0

