



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Scéim Mharcála

An Ardeistiméireacht Fheidhmeach, 2005

Feidhmithe Matamaiticiúla

Marking Scheme

Leaving Certificate Applied, 2005

Mathematical Applications

MARKING SCHEME
LEAVING CERTIFICATE APPLIED, 2005

MATHEMATICAL APPLICATIONS

GENERAL GUIDELINES FOR EXAMINERS

1. Penalties of three types are applied to candidates' work as follows:

- Blunders - mathematical errors/omissions (-3)
- Slips - numerical errors (-1)
- Misreadings (provided task is not oversimplified) (-1).

Frequently occurring errors to which these penalties must be applied are listed in the scheme. They are labelled as B1, B2, B3,....., S1, S2, S3,....., M1, M2, etc. Note that these lists are not exhaustive.

2. When awarding attempt marks, e.g. Att(3), it is essential to note that
- any correct relevant step in a part of a question merits at least the attempt mark for that part
 - if deductions result in a mark which is lower than the attempt mark, then the attempt mark must be awarded
 - a mark between zero and the attempt mark is never awarded.
3. Worthless work is awarded zero marks. Some examples of such work are listed in the scheme and they are labelled as W1, W2,.....etc.
4. The *same* error in the *same* section of a question is penalised *once* only.
5. Special notes relating to the marking of a particular part of a question are indicated by an asterisk. These notes immediately follow the box containing the relevant solution.
6. Particular cases, verifications and answers derived from diagrams (unless requested) qualify for attempt marks only.
7. The phrase “and stops” means that no more work is shown by the candidate.

QUESTION 1

Part (a)	5 marks	Att 2
Part (b)	5 marks	Att 2
Part (c)	5 marks	Att 2
Part (d)	5 marks	Att 2
Part (e)	5 marks	Att 2
Part (f)	5 marks	Att 2
Part (g)	5 marks	Att 2
Part (h)	5 marks	Att 2
Part (i)	5 marks	Att 2
Part (j)	5 marks	Att 2

Part (a) **5 marks** **Att 2**

Find 36% of €436.54

(a) **5marks** **Att 2**

(a)	$\begin{aligned} \text{€}436.54 \times 36\% &= \text{€}157.1544 \\ &= \text{€}157.15 \end{aligned}$
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- * Accept answer in cent form but must indicate this.
- * Accept correct answer with no work.

Blunders(-3)

B1: Inverts 36%.(€1212.61)

B2: Inverts €436.54

B3: Misplaced decimal.

Slips (-1)

S1: Each numerical error to a max. of -3.

S2: Failure to round or incorrect rounding.

S3: Evaluates 136% (€539.69)

S4: Calculates 64% (€279.38)

Attempts(2 marks)

A1: 36 ± 436.54 .

Part (b)

5 marks

Att 2

Write the number 36 758 correct to the nearest thousand.

(b)

5 marks

Att 2

(b)

37 000

Blunders(-3)

B1: Misplaced decimal.

B2: Answer = 37 758.

B3: Answer = 36 000

Misreadings(-1)

M1: Rounds the number to the nearest hundred (36800)

M2: Rounds the number to the nearest ten (36 760)

M3: Rounds to the nearest ten thousand (40 000)

Attempts(2)

A1: Answer = 36 700

A2: Answer = 36 750.

A3: Answer = 30 000

Worthless (0)

W1: Answer = 36.758

Part (c)

5 marks

Att 2

Time in New York is 5 hours behind time in Dublin. When it is 3:15 am in Dublin, what time is it in New York?

(c)

5marks

Att 2

(c)

10:15 pm

* Accept answer = 10:15 in the evening or 22:15.

Blunders(-3)

B1: 1 hour = 100 minutes.

B2: Time forward.(8:15 pm)

B3: $3:15 - 5 = 2:15$ pm

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Incorrect or omitted units

S3: Answer = 11:15 pm

Attempts(2)

A1: Answer = $3:15 - 5 = 3:10$

A2: No work and answer = any hrs + 15 mins or 10 hrs + any mins unless mentioned above.

Part (d)

5 marks

Att 2

A restaurant bill amounts to €192.18. The bill is divided equally between six people. How much does each person pay?

(d)

5marks

Att 2

(d) $€192.18 \div 6 = €32.03$

* Accept correct answer with no work

* Accept answer in cent form but must indicate this.

Blunders(-3)

B1: Misplaced decimal.

B2: Multiplies by 6.(€1153.08)

Slips(-1)

S1: Each numerical error to a max. of -3.

Attempts(2)

A1: $€192.18 \pm 6$.

Part (e)

5 marks

Att 2

Given that 1 kg = 2.205 pounds, convert 3.5 kg to pounds..

(e)

5marks

Att 2

(e) $3.5 \text{ kg} \times 2.205 \text{ pounds} = 7.7175 \text{ pounds}$

* Accept correct answer with no work

Blunders(-3)

B1: Divides by 2.205, answer = 1.587301587 pounds .

B2: Inverts 3.5 kg, answer = 0.63 pounds.

B3: Misplaced decimal.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Truncates answer.

S3: Incorrect or omitted units.

Attempts(2)

A1: Answer = 3.5 kg \pm 2.205 pounds

Worthless(0)

W1: Answer = 3.5 kg

W2: Answer = 2.205 pounds

(f)

5 marks

Att 2

$$1\frac{1}{2} + \frac{3}{8} + \frac{1}{4}$$

(f)

5marks

Att 2

$$(f) \quad \frac{3}{2} + \frac{3}{8} + \frac{1}{4} = \frac{12}{8} + \frac{3}{8} + \frac{2}{8} = \frac{17}{8} = 2\frac{1}{8} \text{ or } 1.5 + 0.375 + 0.25 = 2.125$$

* Accept answer = $\frac{17}{8}$ or any equivalent of $\frac{17}{8}$

* Accept correct answer with no work

Blunders(3)

B1: Omits one of the fractions.

B2: Misplaced decimal.

B3: Incorrect common denominator.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Truncates decimal answer.

S3: Omits or mishandles the 1 when totalling e.g. $\frac{11}{2} + \frac{3}{8} + \frac{1}{4} = 6\frac{1}{8}$

Attempts(2)

A1: Answer = $\frac{3}{2}$.

A2: Multiplies fractions

Worthless (0)

W1: Answer = $\frac{6}{14}$.

Part (g)

5 marks

Att 2

A day of the week is chosen at random.
What is the probability that it begins with the letter 'S'?

(g)

5marks

Att 2

(g) $\frac{2}{7}$

* Accept .answer written as 2:7, 2 in 7, 2 out of 7, or 0.285714285

Blunders(-3)

B1: No fraction or ratio set up.

B2: Answer = 2 + B1.

B3: Answer = 7 + B1.

B4: Answer = $\frac{7}{2}$.

B5: Answer = $\frac{1}{7}$.

B6: Answer = 2 to 7

Slips(-1)

S1: Truncates decimal answer.

Attempts(2)

A1: Any proper fraction other than $\frac{2}{7}, \frac{7}{2}, \frac{1}{7}$.

A2: Answer = Saturday and/or Sunday.

Part (h)

5 marks

Att 2

Write 5.64 km as metres.

(h)

5marks

Att 2

(h) $5.64 \text{ km} \times 1000 = 5640 \text{ metres}$

* Accept correct answer with no work.

Blunders(-3)

B1: Misplaced decimal except for W1.

B2: Inverts 5.64 km, answer = 177.3049645 metres.

B3: Rounds 5.64 km to 6 km and continues.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Incorrect or omitted units.

Attempts(2)

A1: 5.64 ± 1000 .

Worthless(0)

W1: Answer = 5.64 metres.

Part (i)

5 marks

Att 2

A regular hexagon has side of length 14.35 cm. Find its perimeter.

(i)

5marks

Att 2

(i) $14.35 \text{ cm} \times 6 = 86.1 \text{ cm}$.

* Accept correct answer with no work.

Blunders(-3)

B1: Inverts 14.35 and continues.

B2: Divides by 6, answer = 2.39166666.

B3: Misplaced decimal.

B4: Calculates area. (Answer = 205.779 cm^2)

B5: Omits one side.

B6: Answer = $14.35 + 14.35 + 14.35 + 14.35 + 14.35 + 14.35$ and stops.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Incorrect or omitted units.

Worthless(0)

W1: Answer = 14.35 cm.

W2: Divides by 2 and stops

Part (j)

5 marks

Att 2

A student works 6 hours 35 minutes on a Saturday and 3 hours 45 minutes on a Sunday.
Calculate the total time worked over the two days.

(j)

5marks

Att 2

(j) 6 hrs 35 mins + 3 hrs 45 mins = 9hrs 80 mins = 10 hrs 20 mins.

* Accept correct answer with no work.

* Accept answer = 620 minutes .

* Accept answer = $10\frac{1}{3}$ hours.

Blunders(-3)

B1: 1 hour = 100 minutes .

B2: Subtracts rather than adds.

B3: Minutes \neq correct decimal of an hour unless B1.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Answer = 10:20.

S3: Truncates decimal answer.

S4: Incorrect or omitted units.

S5: Answer = 20 hrs 40 mins.

S6: Answer = 5 hrs 10 mins

S7: Answer = 9 hrs 80 mins

Attempts(2)

A1: Answer = 9 hours and stops.

A2: If not covered above any answer between 6 hrs 35 mins and 10 hours 80 mins.

Worthless(0)

W1: Multiplies 6hrs 35 mins by 3 hrs 45 mins..

QUESTION 2

Part (a)	15 marks	Att 5
Part (b)	5 marks	Att 2
Part (c)	5 marks	Att 2
Part (d)	10 marks	Att 3
Part (e)	5 marks	Att 2
Part (f)	10 marks	Att 3

Part (a) **15 marks** **Att 5**

Susan is thinking about borrowing €14 000 over three years. Write down the relevant monthly repayment per €'000 from the table.

Part (a) **15 marks** **Att 5**

(a)	€35.90	
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Blunders(-3)

B1: Incorrect column.

Slips(-1)

S1: Answer from incorrect row.

S2: Answer = €502.60(€35.90 ×14)

Attempts(5)

A1: answer = 8001 – 15000

Worthless(0)

W1: Answer = any amount not covered above.

Part (b) **5 marks** **Att 2**

How much will Susan have to repay each month?

(b) **5 marks** **Att 2**

(b)	€35.90 × 14 = €502.60	
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* Accept correct answer with no work

* Accept candidate's answer from part (a).

Blunders(-3)

B1: Misplaced decimal.

B2: Divides by 14(Answer = €2.56)

B3: Answer = € 35.90 × 'months'

Slips(-1)

S1: Answer = € 287.20 = €35.90 × 8.

S2: Answer = € 538.50 = €35.90 × 15.

S3: Answer = €35.90 × 14×36.

S4: Each numerical error to a max. of -3.

Attempts(2)

A1: Answer = €35.90 or candidate's answer for part (a).

A2: Any answer between €35.90 and € 502.60 unless covered above.

Part (c)

5 marks

Att 2

After Susan has finished all her repayments how much will she have paid?

(c)

5marks

Att 2

$$(c) \quad \text{€}35.90 \times 14 \times 36 = \text{€}502.60 \times 36 = \text{€}18\,093.60$$

* Accept candidate's answer from part (b)

* Accept correct answer with no work.

Blunders(-3)

B1: Misplaced decimal.

B2: Divides by 36.

B3: Multiplies by 3 and stops.

Slips(-1)

S1: Multiplies by 24,48 or 60.

S2: Truncates decimal answer.

S3: Each numerical error to a max of -3.

Attempts(2)

A1: Answer = candidate's answer from part (b).

A2: Any number greater than €14 000 and less than €18 093.60

Worthless(0)

W1: Answer = €14 000.

Part (d)

10 marks

Att 3

Susan wants the money to buy a car that costs €14 000. Instead of the above loan Susan is considering the following offer from the car dealer: a deposit of €2000 and 24 monthly repayments of €650. Under this offer calculate the total amount that Susan will have to pay.

(d)

10 marks

Att 3

$$(d) \quad \text{€}2000 + (24 \times \text{€}650) = \text{€}2000 + \text{€}15600 = \text{€}17600$$

* Accept correct answer with no work

Blunders(-3)

B1: Ignores €2000 and continues.

B2: Divides by 24 and continues.

B3: Ignores 24 + B2.

B4: Misplaced decimal.

Slips(-1)

S1: Multiplies €650 by 36 and continues.

S2: Answer = €31600(€17600 + €14000).

S3: Each numerical error to a max of -3.

Attempts(3)

A1: Answer = $24 \pm \text{€}650$.

A2: Answer = € 16 650.

Part (e)

5 marks

Att 2

Give one reason why Susan might choose the term loan and one reason why she might choose the dealer's offer.

(e)

5marks

Att 2

(e)

Reason to choose the term loan.....*no deposit needed or monthly repayments smaller.....*

Reason to choose the dealer's offer...*cheaper than the term loan or shorter period of repayments.....*

* Accept reasons that correspond to candidate's previous calculations

Slips(-1)

S1: One reason attempted and consistent with candidate's work

Attempts(2)

A1: Reasons not consistent with candidate's previous calculations

A2: One reason inconsistent with candidate's work.

Part (f)

10 marks

Att 3

Joe borrowed a sum of money for 2 years at 8% per annum compound interest. He made no repayments. After two years he owed €13 996.80. How much did he borrow?.

(f)

10marks

Att 3

$$\begin{aligned} \text{(f)} \quad A &= P \left(1 + \frac{R}{100} \right)^n \\ 13\,996.80 &= P \left(1 + \frac{8}{100} \right)^2 \\ 13\,996.80 &= P(1 + 0.08)^2 \\ 13\,996.80 &= P(1.08)^2 \\ 13\,996.80 &= P(1.1664) \\ 13\,996.80 \div 1.1664 &= P \\ \text{€}12\,000 &= P \end{aligned}$$

* Accept correct answer with no work

Blunders(-3)

B1: Each incorrect substitution to a max of -6

B2: Misplaced decimal

B3: $(1.08)^2 = 2(1.08)$ and continues

B4: $1 + \frac{R}{100} = \frac{1+R}{100}$ and continues

B5: $1 + \frac{R}{100} = 1 \times \frac{R}{100}$

B6: Ignores square.

B7: Transposition error.

B8: Correct substitution and stops +B3 + B4.

Slips(-1)

S1: Each numerical error to a max. of -3

S2: Failure to round or incorrect rounding.

Attempts(3)

A1: $13\,996.80 \times \frac{8}{100}$ and stops

A2: $13\,996.80 \times 2$ and stops

A3: $8\% \times 2$ and stops

A4: Any substitution correct or incorrect

A5: Answer = €2239.49 (Simple interest).

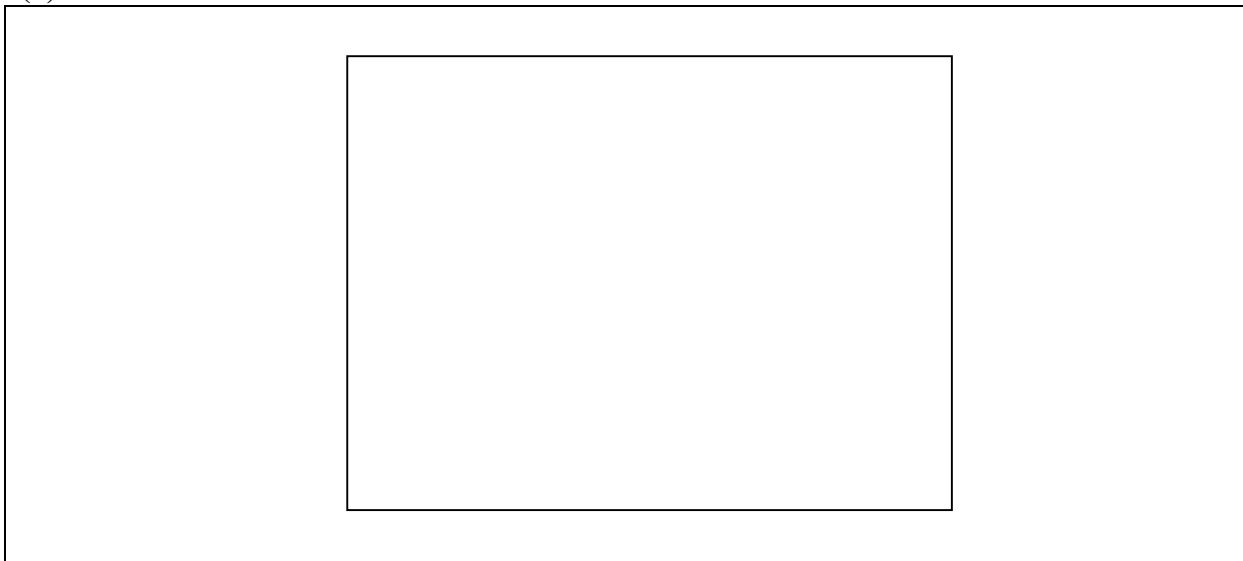
QUESTION 3

Part (a)	15 marks	Att 5
Part (b)	(5,5) marks	Att (2,2)
Part (c)	5 marks	Att 2
Part (d)	10marks	Att 3
Part (e)	10marks	Att 3

Part (a) **15 marks** **Att 5**

(a) Construct a rectangle
8 cm long and 6 cm wide

(a) **15marks** **Att 5**



- * tolerance ± 0.1 cm
- * tolerance $\pm 3^\circ$
- * Accept width = 8 cm and length = 6 cm.

Blunders(-3)

B1: Each side of rectangle omitted to a max. of -6.

B2: Side outside tolerance of 0.5 cm applied once to '8's and applied once to '6's

B3: Angle not between 80° and 100° once only

Slips(-1)

S1: Incorrect units.

S2: Each side outside tolerance of 0.1 cm unless B2, applied once to '8's and applied once to '6's

S3: Angle not between 87° and 93° , once only unless B3

Attempts(3)

A1: One side only drawn within the tolerance.

A2: Rectangle not drawn with straight edge

Part (b)

(5, 5) marks

Att(2,2)

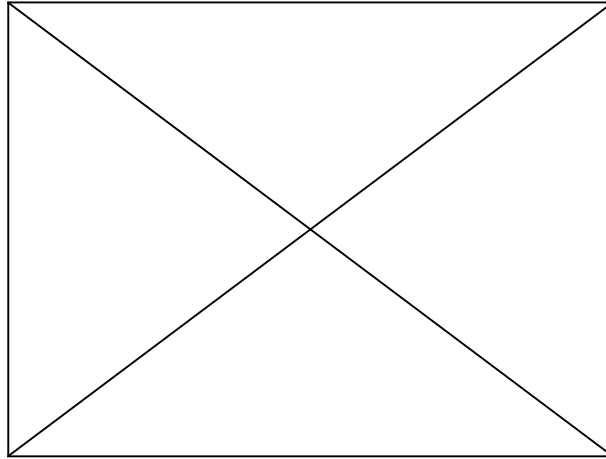
Draw a diagonal in the rectangle in part (a) and write down its length..

(b) Diagonal Construction

5marks

Att 2

(b) One **OR** other diagonal required



* Accept candidate's diagram from part (a).

Blunders(-3)

B1: Labels one of the sides of the rectangle as the diagonal.

B2: Diagonal = line drawn in interior of the rectangle not joining two vertices.

B3: Diagonal not joining two vertices of the rectangle + possible B2.

Slips(-1)

S1: Diagonal containing only one vertex.

Attempts(2)

A1: A line drawn outside the rectangle.

A2: Diagonal in a triangle, labelled or unlabelled.

(b) Length of Diagonal

5 marks

Att 2

Diagonal = 10 cm

* Accept length of the diagonal constructed by the candidate.

* Tolerance ± 0.1 cm.

Blunders(-3)

B1: Diagonal measured outside tolerance of 0.5 cm.

Slips(-1)

S1: Side measured between tolerance 0.1 cm and 0.5 cm .

S2: Incorrect or omitted units.

Worthless (0)

W1: Incorrect answer with no diagram.

W2: answer = 6, or 8 not relevant to candidate's diagram

Part (c)**5 marks****Att 2**

(c) Use the theorem of Pythagoras to check your answer to part (b). The theorem of Pythagoras states: "The square on the hypotenuse is equal to the sum of the squares on the other two sides."

(c)**5marks****Att 2**

$$10^2 = 8^2 + 6^2$$

$$100 = 64 + 36$$

$$100 = 100$$

* Accept candidate's answer from part (b)

Blunders(-3)

B1: Max. error in the application of Pythagoras.

B2: Correct substitution and stops.

B3: $10^2 = 2(10)$ and continues.

B4: Misplaced decimal

B5: No hypotenuse

B6: Uses 3,4,5 as sides and continues.

Slips(-1)

S1: Each numerical error to a max. of -3

S2: Incorrect conclusion.

Attempts(2)

A1: Construct square on one or all sides of triangle and stops

A2: States triangle is 6,8,10 and Pythagoras works.

A3: States it is true as triangle is right angled.

Part (d)**10 marks****Att 3**

The rectangle you have drawn in part (a) is a scaled diagram of the top of a kitchen Table. The scale is 1: 16. Calculate the actual measurements of the top of the table.

(d)**10 marks****Att 3**

(d) Length: $8 \text{ cm} \times 16 = 128 \text{ cm}$ or 1.28 m

Width: $6 \text{ cm} \times 16 = 96 \text{ cm}$ or 0.98 m

* Accept width for length and *vice versa*

Blunders(-3)

B1: Correct answer for the length or width only.

B2: Divides by 16.

Slips(-1)

S1: Each numerical error to a max of -3.

S2: Incorrect or omitted units

S3: Uses diagonal as one of the sides.

Attempts(3)

A2: Answer length = 1 cm and width = 16 cm.

A3: Answer length = 9 cm(8+1), width = 22 cm (6 + 16)

Worthless(0)

W1: Answer, length = 8 and width = 6 and stops

Part (e)

10 marks

Att 3

What is the area of the top of the table? Give your answer in m^2 .

(e)

10 marks

Att 3

(e) $96 \times 128 = 12288 \text{ cm}^2 = 1.2288 \text{ m}^2$

* Accept candidate's answer for part (d).

Blunders(-3)

B1: Divides to get area.

B2: Incorrect length unless B8

B3: Incorrect width unless B8

B4: Misplaced decimal.

B5: Incorrect conversion

B6: 96×128 and stops + B5.

B7: Calculates perimeter

B8: Area = $8 \text{ cm} \times 6 \text{ cm} = 0.0048 \text{ m}^2$

Slips(-1)

S1: Each numerical error to a max of -3.

S2: Incorrect or omitted units.

S3: Truncates decimal answer.

Attempts(3)

A1: 96 ± 128 and stops

Worthless(0)

W1: Answer = 8 or 6 or 16 not relevant to candidate's answer for part (d).

QUESTION 4

Part (a)	15marks	Att 5
Part (b)	10 marks	Att 3
Part (c)	10 marks	Att 3
Part (d)	5marks	Att 2
Part (e)	10 marks	Att 3

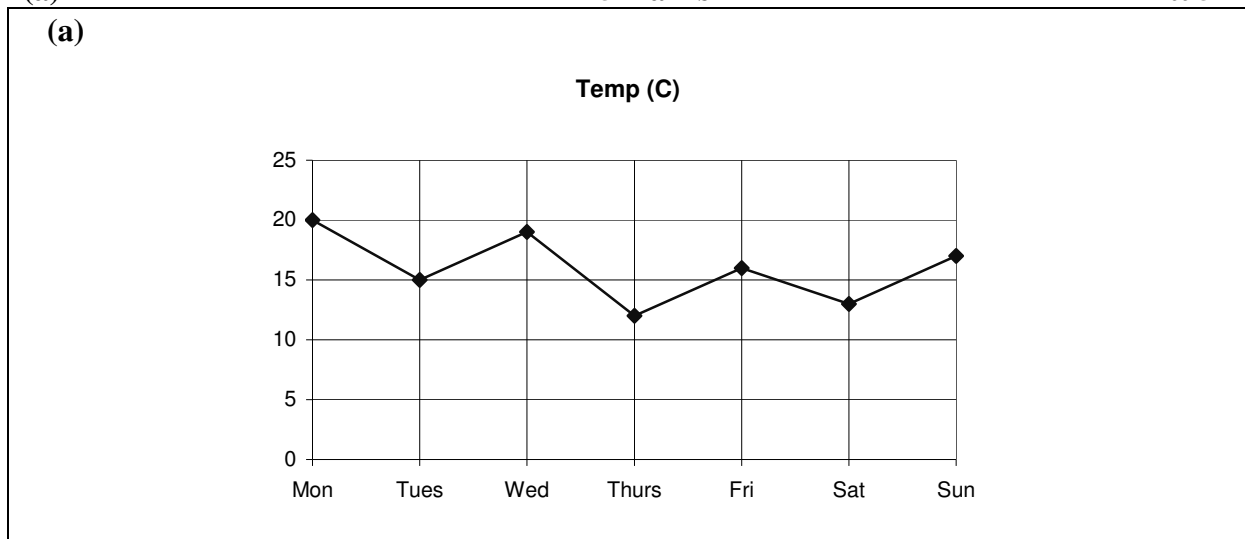
Part (a) **15marks** **Att 5**

The temperature is measured at noon each day for a week. The results are recorded in the following table:

Day	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Temp(°C)	20	15	19	12	16	13	17

Draw a trend graph to represent this information.

(a) **15 marks** **Att 5**



Blunders(-3)

- B1: Divisions on Day axis not all equal width.
- B2: Incorrect scaling on frequency axis provided numbers are in correct order.
- B3: Omits naming days.
- B4: Having drawn correct axis omits a day to a max of -9.
- B5: Dots not joined or incorrectly joined.

Slips(-1)

- S1: Each numerical error to a max. of -3.
- S2: Reversing order on time axis (days in exactly opposite order)

Attempts(5)

- A1: Draws and labels one or two axis only, correct or incorrect.
- A2: Serious mishandling of scale , numbers or days not in correct order.
- A3: Constructs pie chart.

Misreadings(-1)

- M1: Constructs correct bar graph.

Part (b)

10 marks

Att 3

Calculate the average noon temperature for the week.

(b)

10 marks

Att 3

$$\begin{aligned} \text{(b)} \quad & \frac{20+15+19+12+16+13+17}{7} \\ &= \frac{112}{7} \\ &= 16^\circ \text{C} \end{aligned}$$

* Accept correct answer with no work

Blunders(-3)

B1: Multiplies total by 7(784).

B2: Total only + B1.

B3: Inverts 112.

B4: Misplaced decimal.

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Incorrect or omitted units.

S3: List evident each temperature omitted to a max of -3.

Attempt(3)

A1: Any indication of addition

A2: Multiplies one of the temperature by 7.

A3: Answer = 12.

Worthless(0)

W1: Multiplies temperature together only.

W2: Answer = 7.

Part (c)

10 marks

Att3

The above temperatures and the noon temperatures for the following week are as follows:

20,15,19,12,16,13,17,21,18,16,13,15,14,13

Complete the following frequency table:

(c)

10 marks

Att 3

Temperature	12	13	14	15	16	17	18	19	20	21
No.Days	1	3	1	2	2	1	1	1	1	1

Attempt(3)

A1: At least one correct entry.

Slips(-1)

S1: Each incorrect entry

Part (d)

5 marks

Att 2

Write down the modal temperature for the 14 days.

(d)

5 marks

Att 2

(d) 13° C

* Accept candidate's answers for part (c).

Blunders(-3)

B1: Answer = 3° C

Slips(-1)

S1: Incorrect or omitted units.

Attempt(2)

A1: Calculates the mean of the table in part (c) correct or incorrect.

Part (e)

5 marks

Att 2

Convert the modal temperature to degrees Fahrenheit using the formula:

$$F = C \times \frac{9}{5} + 32$$

(e)

5 marks

Att 2

(e) $F = 13 \times \frac{9}{5} + 32$

$$F = \frac{117}{5} + 32$$

$$F = 55.4^\circ \text{ F}$$

* Accept candidate's answer from part (d).

* Accept correct answer with no work.

* Accept answer = $55\frac{2}{5}^\circ \text{ F}$ or $\frac{227}{5}^\circ \text{ F}$

* Accept $F = 55.4$

Blunders(-3)

B1: Ignores order of operations

B2: Mishandles or ignores $\frac{9}{5}$

B3: Misplaced decimal.

B4: Correct substitution and stops + B1 + possible B2

Slips(-1)

S1: Each numerical error to a max. of -3.

S2: Incorrect or omitted units.

Attempt(2)

A1: Substitution for C correct or incorrect and stops.

QUESTION 5

Part (a)	(10,5,5,5,5) marks	Att (3,2,2,2,2)
Part (b)	10 marks	Att 3
Part (c)	10marks	Att 3

Part (a)	(10,5,5,5,5) marks	Att (3,2,2,2,2)
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Fill in the five missing details on the electricity bill.

(a)(i)	10 marks	Att 3
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(a) (i) Units

$$98199 - 97146 = 1053$$

* Accept correct answer with no work

Blunders(-3)

B1: Adds instead of subtracts. (195345)

B2: $97146 - 98199 = 8974$

Slips(-1)

S1: Each numerical error to a max of -3.

Attempt(3)

A1: Answer = 98199.

A2: Answer = 97146

A3: Answer = $98199 \times 97146 = 953940054$.

(a) (ii)	5 marks	Att 2
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(a) (ii) cost of units in euro

$$1053 \times 11.07 = 11656.71c$$

$$= \text{€}116.5671$$

$$= \text{€}116.57$$

* Accept correct answer with no work

* Accept candidate's answer from part (a)(i)

Blunders(-3)

B1: Divides by 11.07(€0.95)

B2: 98199×11.07 (10870.63c) or 97146×11.07 (10754.06) and stops

B3: Rounds the cost per unit before multiplying (€115.83)

B4: Misplaced decimal.

Slips(-1)

S1: Each numerical error to a max of -3.

S2: Failure to round or incorrect rounding

S3: Failure to convert cent to euro.

Attempt(2)

A1: 1053 ± 11.07

A2: 6.88×11.07 .

(a) (iii)

5 marks

Att 2

(a) (iii) VAT on ???
 $€116.57 + 6.88 + 3.02 = 126.47$

- * Accept correct answer with no work
- * Accept candidate's answer from part (a)(ii)

Blunders(-3)

- B1: Ignores 6.88 and continues
- B2: Ignores 3.02 and continues
- B3: Subtracts instead of adding

Slips(-1)

- S1: Each numerical error to a max of -3.
- S2: Failure to round or incorrect rounding

Attempt(2)

- A1: Answer = 6.88 or 3.02 or 9.90 or 3.86.

(a) (iv)

5 marks

Att 2

(a) (iv) Calculate VAT @ 13.5%:
 $13.5\% \times 126.47 = 17.07$

- * Accept correct answer with no work
- * Accept candidate's answer from part (a)(iii)

Blunders(-3)

- B1: Inverts 126.47 (0.00106)
- B2: Inverts 13.5% (936.81)
- B3: Misplaced decimal

Slips(-1)

- S1: Each numerical error to a max of -3.
- S2: Failure to round or incorrect rounding.
- S3: Evaluates 113.5%.

Attempt(2)

- A1: Calculates 13.5% of a relevant number.

NOTE:-

If candidate swaps answers for parts a(iii) and a(iv) then misreading(-1) applied to part a(iii).
If candidate then answers part a(v) by adding his answer for part a(ii) + 6.88 + 3.02 + his answer for part a(iv) then a blunder of -3 applies in part a(v).

(a)(v)

5 marks

Att 2

(a) (v) TOTAL €

$$116.57 + 6.88 + 3.02 + 17.07 = 143.54$$

* Accept correct answer with no work

* Accept candidate's answer from parts (a)(ii),(iii) (iv)

Blunders(-3)

B1: Each cost omitted

B2: Misplaced decimal

B3: Subtracts instead of adds.

Slips(-1)

S1: Each numerical error to a max of -3.

S2: Failure to round or incorrect rounding.

S3 Subtracts VAT (126.47)

Misreadings(-1)

M1: If 113.5% filled in part (iv) and part (v)

M2: Part (iv) blank but correct answer in part (v).

Note: 113.5% filled in part (iv), is misreading(-1), and part (v) blank is 0 marks for part (v).

Part (b)

10 marks

Att 3

A bag contains 5 red balls and 6 white balls. A ball is picked at random. What is the probability that the ball chosen is red?

(b)

10 marks

Att 3

(b)

$$\frac{5}{11}$$

* Accept 5:11, 5 in 11, 5 out of 11, 5 of 11, 0.4545454545

Blunders(-3)

B1: No fraction or ratio set up

B2: Answer = 5 + B1.

B3: Answer = 11 + B1

B4: Answer = $\frac{11}{5}$

B5: Answer = 5 to 11

B6: Answer = $\frac{1}{11}$

Slips(-1)

S1: Answer = $\frac{6}{11}$

S2: Answer in decimal truncated.

Attempt(3)

A1: Any proper fraction other than = $\frac{5}{11}, \frac{1}{11}, \frac{6}{11}$

A2: Answer = 1 in 5

A3: Any use of 5

A4: Answer 1- 11.

Part (c)

10marks

Att 3

Anne takes three steps to walk the same distance as Seán walks in four steps. Each of Anne's steps covers 0.5 metres. How many metres does Seán walk in 24 steps?

(c)

10 marks

Att 3

(c)

$$\begin{aligned} 0.5 \times 3 \times 24 \div 4 \\ = 1.5 \times 6 \\ = 9 \text{ metres.} \end{aligned}$$



* Accept correct with no work

Blunders(-3)

B1: Each operation incorrect in the line $0.5 \times 3 \times 24 \div 4$

B2: Each number missing or incorrect in the line $0.5 \times 3 \times 24 \div 4 + B1$.

B3: Misplaced decimal.

Slips(-1)

S1: Each numerical error to a max. of -3 .

Attempts(3)

A1: Answer = 7 and stops.

A2: Answer = $0.5 + 24$ and stops.

A3: Answer = $3 \times 4 = 12$ and stops.

Worthless(0)

W1: Answer = 3 or 4 or 24.