



KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

MATHEMATICAL LITERACY P2

JUNE EXAMINATION

2025 stanmorephysics.com

stanmorephysics.com

MARKS: 100

TIME: 2 hours

This question paper consists of 10 pages and an Addendum with 2 Annexures.

INSTRUCTIONS AND INFORMATION

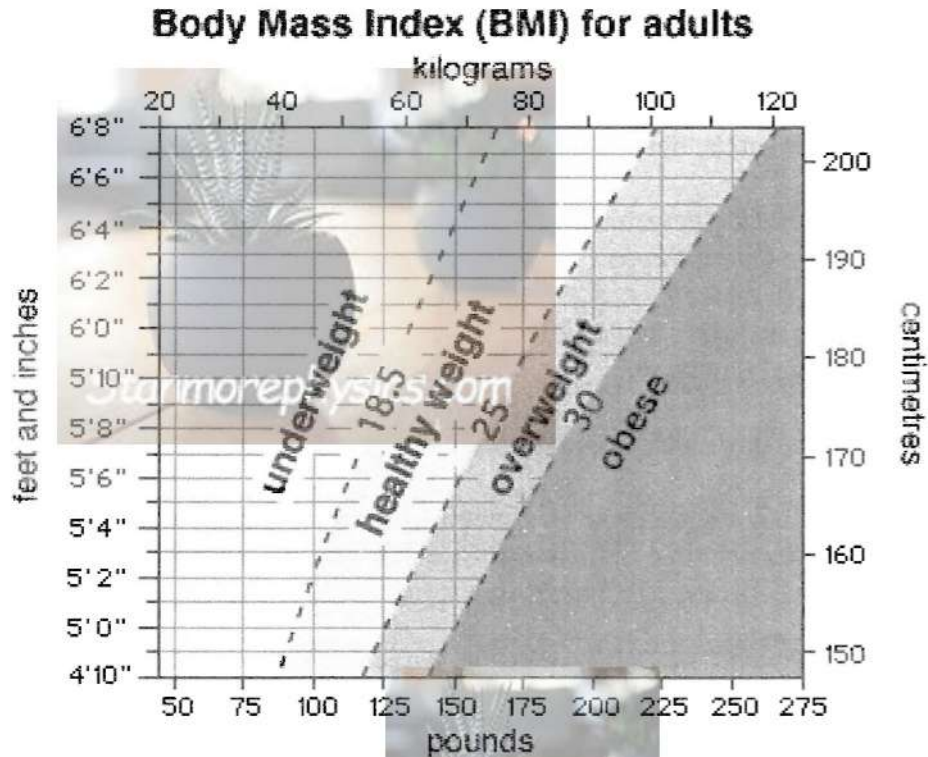
1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions.
ANNEXURE A for QUESTION 1.2
ANNEXURE B for QUESTION 2.2
3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.



QUESTION 1

1.1

Body mass index (BMI) is a measurement of body fat based on an individual’s weight and height. The chart below shows the BMI values and corresponding status categories for adults.



NOTE: 1Kg = 2.20462 pounds

[Source: www.britanica.com]

Use the chart and the information above to answer the questions that follow.

- 1.1.1 Explain the term *BMI* status. (2)
- 1.1.2 Determine the BMI status of an adult with a BMI of less than 18,5. (2)
- 1.1.3 Identify the BMI of an adult who is 6’3” and weighs 185 pounds. (2)
- 1.1.4 Convert 225 pounds to kilograms, rounded off to two decimal places. (2)
- 1.1.5 Explain one disadvantage of having an obese BMI status. (2)

- 1.2 The map in ANNEXURE A shows the Durban University of Technology and its different campuses.

Use the map in ANNEXURE A to answer the questions that follow.

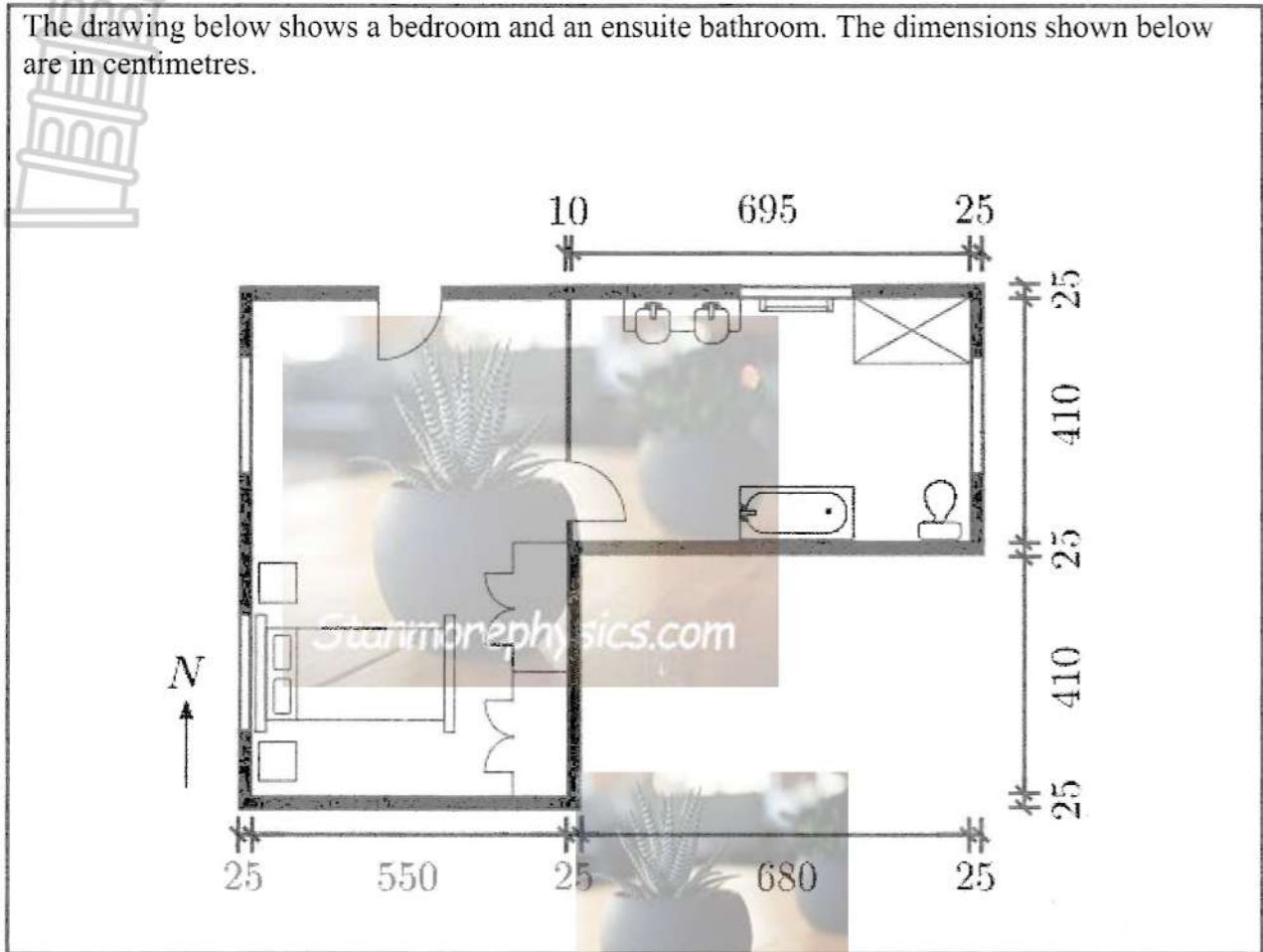
- 1.2.1 Identify the type of map shown in ANNEXURE A. (2)
- 1.2.2 Write down the name of the national road shown on the map. (2)
- 1.2.3 Determine the general direction of the Department of Fashion and Textiles Campus from the City Campus. (2)
- 1.2.4 A car is traveling down Calder Road; identify the turn it must take to continue onto Jan Smuts Highway. (2)
- 1.2.5 Describe the relative position of the ML Sultan Campus. (2)
- 1.2.6 Steve Biko campus is approximately 7 minutes away from the City Campus by car. Determine the time of arrival at City Campus if a student leaves Steve Biko at 15:56. Write the answer in 12-hour time format. (3)
- 1.2.7 Name a road(s) that can be used to access all 4 campuses. (2)

[25]



QUESTION 2

2.1 The drawing below shows a bedroom and an ensuite bathroom. The dimensions shown below are in centimetres.



[Source: www.mathspace.co]

Use the image and the information above to answer the questions that follow.

- 2.1.1 Identify the type of drawing shown above. (2)
- 2.1.2 Explain the difference between the image shown above and an elevation plan (2)
- 2.1.3 Describe the side of the drawing that would represent the west elevation. (2)
- 2.1.4 Measure the length of the above drawing and determine rounded off to the nearest whole number, the scale of the plan. (6)

2.2 ANNEXURE B shows the map of Cape Town and the tourist sites.

Use the map in ANNEXURE B to answer the questions that follow.

2.2.1 Name a famous tourist site, located off the mainland, north of the City Centre. (2)

2.2.2 Determine the total number of Bays on the map. (2)

2.2.3 Identify the type of scale shown on the map. (2)

2.2.4 Explain what the scale on the map represents. (2)

2.2.5 Use the scale on the map to calculate the actual distance in kilometres from Simon's Town to the Airport. (4)

[24]



QUESTION 3

3.1 A local nursery sells herbs and plans to fence their square herb garden as shown in the image. The garden is divided by stone walkways, each of which will have a gate for entering the garden. The width of each gate is 90 cm. The wooden fence is sold in lengths of 1.2 metres

IMAGE OF HERB GARDEN	WOODEN FENCING
<p>(Source: www.Ourkokopelli.com)</p>	

Use the image and the information above to answer the questions that follow.

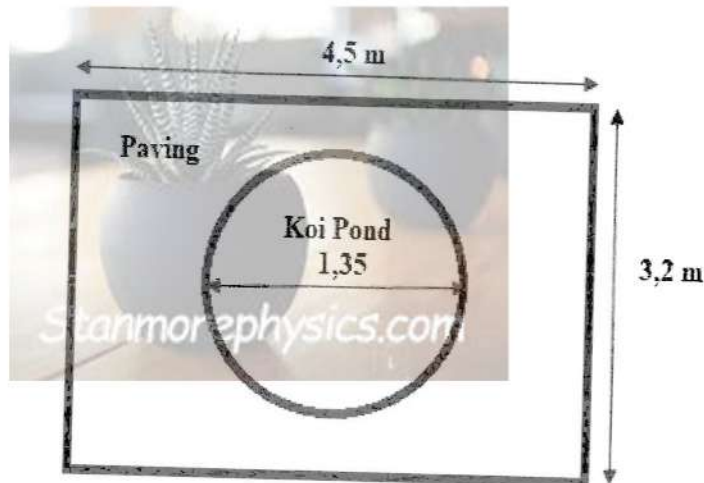
- 3.1.1 Determine the perimeter of the herb garden.

You may use the following formula: **Perimeter = 4 (side)** (2)
- 3.1.2 Determine the number of lengths of fencing required if 4 gates are needed. (5)
- 3.1.3 A length of fencing costs R330 and a gate costs R495. Calculate the total cost, including labour cost at R250 per day or part thereof, for a job that took 1,5 days. (4)
- 3.1.4 The herb garden contains 14 beds of herbs. Determine the probability, as a percentage, that lavender is planted. (4)
- 3.1.5 Determine the probability of roses being planted. (2)

3.2

The local nursery has a koi pond in its garden. Koi are tropical fish. The image below shows the dimensions of the round Koi Pond along with the surrounding paving. The diameter of the Koi Pond is 1,35m

IMAGE OF A KOI POND



(Adapted from: <https://images.app>)

Use the information above and answer the questions that follows.

3.2.1 Determine the radius of the pond.

(2)

3.2.2 Determine the area of the paving surrounding the koi pond.

You may use the formulae:

Area of a rectangle = length \times breadth

Area of a circle = $3,142 \times \text{radius}^2$

(5)

3.2.3 Calculate the number of bricks needed to pave the area around the koi pond, if the area of one brick is $0,45\text{m}^2$.

(3)

[27]

QUESTION 4

4.1

Anne is a candy maker who designs the cylindrical sweet container shown below. The diameter of the cylinder is $\frac{2}{3}$ of its height.



(Source: <https://m.made-in-china.com>)

Use the image and information above to answer the questions that follow.

4.1.1 Calculate the surface area of the cylindrical sweet container.

You may use the formula:

$$SA = 2 \times 3,142 \times r^2 + 2 \times 3,142 \times r \times \text{height} \quad (6)$$

4.1.2 Determine how many cylindrical containers can be made from 1m^2 of cardboard. (4)

4.1.3 The cylinder holds 0,45 kg of sweets, calculate how many sweets it will hold, if one sweet is 25g. (4)

4.2

The image below shows a cylindrical container holding 300 kg of liquid glucose which is used for making sweets.

CYLINDRICAL CONTAINER OF LIQUID GLUCOSE



NOTE: 1kg = 1litre

1 litre = 1 000cm³

(Source: www.indiamart.com)

Use the image and information above to answer the questions that follow.

- 4.2.1 A claim was made that the height of the cylinder is 1m.
Verify, showing all calculations, if this claim is **CORRECT**.

You may use the formula:

$$\text{Volume} = 3,142 \times r^2 \times \text{height} \quad (6)$$

- 4.2.2 Calculate the number of 250 ml bottles that can be filled with liquid glucose from the cylinder, if each bottle is filled to 95% of its capacity. (4)

[24]

TOTAL:100



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ADDENDUM

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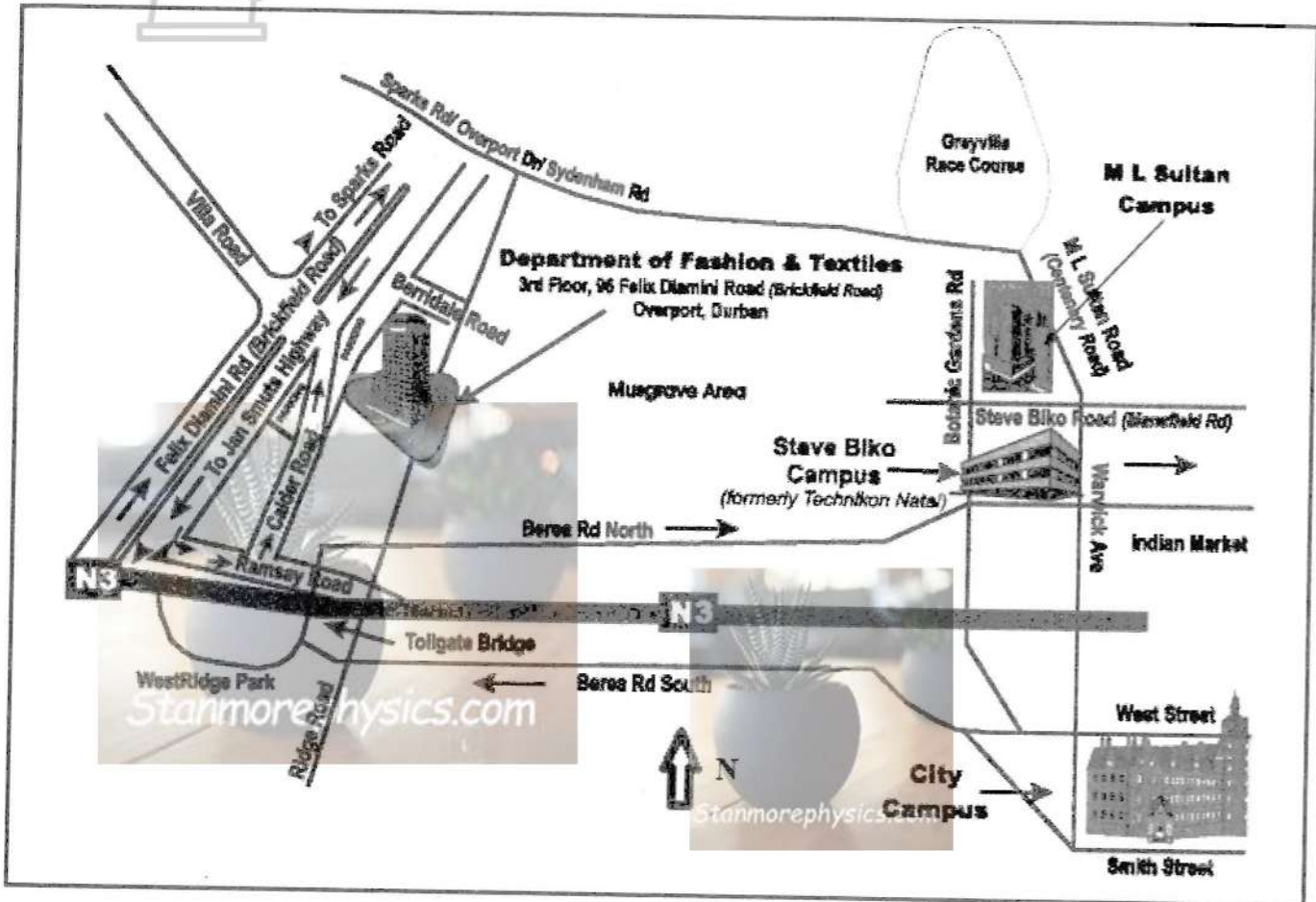
Stanmorephysics.com

This Addendum consists of 3 pages with 2 Annexures.

ANNEXURE A

QUESTION 1.2

MAP OF DURBAN UNIVERSITY OF TECHNOLOGY CAMPUSES



[Source: www.dut.ac.za]

ANNEXURE B

QUESTION 2.2

MAP OF CAPE TOWN SHOWING TOURIST SITES



[Source:www.exquisitecoasts.com]



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FINAL

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GRADE 12

MATHEMATICAL LITERACY P2

JUNE EXAMINATION

MARKING GUIDELINE

2025

MARKS: 100

Symbol	Explanation
MA	Method with Accuracy
CA	Consistent Accuracy
MCA	Method with Consistent Accuracy
A	Accuracy (Answer)
AO	Answer only full marks
C	Conversion
S	Simplification
RT	Reading from table / Reading from graph / Reading from map/Reading from plan
SF	Substitution in formula
O	Opinion/ Explanation
J	Justification
P	Penalty e.g. for no units, incorrect rounding, etc
R	Rounding
NPR	No penalty for rounding
NPU	No penalty for omitting units but incorrect unit is penalised

This marking guideline consists of 8 pages

NOTES:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however, it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- Rounding is an independent mark.
- A conclusion mark can only be awarded if relevant calculations of at least $\frac{1}{3}$ of the maximum mark of the sub-question has been awarded.
- No penalty for rounding (NPR) if the first decimal is correct, except questions involving money

QUESTION 1 [25 MARKS] ANSWER ONLY FULL MARKS

Ques	Solution	Explanation	T&L
1.1.1	BMI status classifies a person's BMI into weight categories such as underweight, healthy weight, over weight and obese. ✓✓O	2O correct explanation (2)	M L1 E
1.1.2	Underweight ✓✓RT	2RT correct answer (2)	M L1 E
1.1.3	BMI = 25 ✓✓RT	2RT correct answer (2) Accept: 23 to 25	M L1 E
1.1.4	Number of kg = $225 \div 2,20462$ ✓MA = 102,06 kg ✓A	1MA dividing by 2,20462 1A correct answer (2)	M L1 M
1.1.5	It's an unhealthy weight status that leads to co-morbidities/ disease ✓✓O	2O correct explanation (2)	M L1 E
1.2.1	Layout plan /map ✓✓RT	2RT correct answer (2) Accept: Street map	MP L1 E
1.2.2	N3 ✓✓RT	2RT correct answer. (2)	MP L1 E
1.2.3	North West ✓✓RT OR NW ✓✓RT	2RT correct answer. (2)	MP L1 E
1.2.4	Left turn ✓✓RT OR Turn left ✓✓RT	2RT correct answer. (2)	MP L1 E

1.2.5	<p>It's on the corner of Botanic Gardens Road and Steve Biko Road. ✓✓RT</p> <p style="text-align: center;">OR</p> <p>Opposite Greyville Racecourse/ Steve Biko Campus. ✓✓RT</p> <p style="text-align: center;">OR</p> <p>Corner of ML Sultan and Steve Biko ✓✓RT</p> <p style="text-align: center;">OR</p> <p>Corner of Sparks Rd/Overport Dr/Sydenham Rd and ML Sultan ✓✓RT</p>	<p>2RT correct answer.</p> <p style="text-align: right;">(2)</p>	<p>MP L1 E</p>
1.2.6	<p>Time = 15:56 + 7 mins ✓MA</p> <p style="padding-left: 40px;">= 16:03 ✓A</p> <p style="padding-left: 40px;">= 4:03pm ✓A</p>	<p>1MA adding</p> <p>1A correct answer.</p> <p>1A correct format</p> <p style="text-align: right;">(3)</p>	<p>MP L1 E</p>
1.2.7	<p>Berea Road North ✓✓RT</p> <p style="text-align: center;">OR</p> <p>Berea Road South ✓✓RT</p>	<p>2RT correct answer</p> <p style="text-align: right;">(2)</p>	<p>MP L1 E</p>
[25]			

QUESTION 2 [24 MARKS]			
Ques	Solution	Explanation	T&L
2.1.1	Floor plan ✓✓A	2A correct answer (2)	MP L1 E
2.1.2	Floor plan shows aerial/top/birds eye view. ✓O Elevation shows the front/back and side view of the building/height of buildings/windows/doors ✓O	2O correct explanation (2)	MP L1 E
2.1.3	Side/Wall of the floor plan with two windows ✓✓A	2A correct answer (2)	MP L2 M
2.1.4	Measured Length = 9,5cm ✓A Actual length = 25cm+550cm+25cm+680cm+25cm ✓MA = 1305cm ✓A 9,5cm = 1 305cm ✓MA 1 cm = 137,368cm ✓S 1:137 ✓R	1A measuring length 1MA adding 1A correct answer 1MA concept of scale 1S simplification 1R rounding (6) Accept leeway of 1	MP L3 M
2.2.1	Robben Island ✓✓RT	2RT correct answer (2)	MP L2 E
2.2.2	7 ✓✓RT	2RT correct answer (2)	MP L2
2.2.3	Bar/Line /Graphic scale ✓✓A	2A correct answer (2)	MP L1 E
2.2.4	1,3cm on the map represents 10km in reality ✓✓O OR 13mm on the map represents 10km in reality ✓✓O	2O correct explanation Accept leeway of 0.1cm/1mm (2)	MP L2 E
2.2.5	Distance on the map = 5,3 cm ✓A ✓MCA Actual distance = (5,3cm × 10) ÷ 1,3 ✓MCA = 40,77km ✓CA OR Distance on the map = 53 mm ✓A ✓MCA Actual distance = (53mm × 10) ÷ 13 ✓MCA = 40,77km ✓CA	CA from Q2.2.4 1A correct distance 1MCA multiplying by 10 1MCA dividing by 1,3 1CA answer OR 1A correct distance 1MCA multiplying by 10 1MCA dividing by 13 1CA answer Accept leeway of 1 NPR (4)	MP L3 M
		[24]	

QUESTION 3 [27 MARKS]			
Ques	Solution	Explanation	T&L
3.1.1	$\text{Perimeter} = 4(7\text{m}) \checkmark \text{SF}$ $= 28\text{m} \checkmark \text{A}$	1SF substitution 1A correct answer (2)	M L2 E
3.1.2	$\text{Gate in metres} = 90\text{cm} \div 100 \checkmark \text{C}$ $= 0,9 \text{ m}$ $\checkmark \text{MA} \quad \checkmark \text{MA}$ $\text{Lengths of Fencing} = [28\text{m} - (4 \times 0,9\text{m})] \div 1,2\text{m}$ $= 20,33 \checkmark \text{CA}$ $= 21 \checkmark \text{R}$	CA from Q3.1.1 1C conversion 1MA subtracting 4 gates 1MA dividing by 1,2 1CA answer 1R rounding (5)	M L3 M
3.1.3	$\checkmark \text{MCA} \quad \checkmark \text{MCA} \quad \checkmark \text{MA}$ $\text{Total cost} = (\text{R}330 \times 21) + (\text{R}495 \times 4) + (\text{R}250 \times 2)$ $= \text{R}9\,410 \checkmark \text{CA}$	CA from Q3.1.2 1MCA multiplying by 21 1MCA multiplying by 4 1MA multiplying R250 by 2 1CA answer (4)	M L2 M
3.1.4	$\text{Probability (Lavender)} = \frac{2 \checkmark \text{A}}{14 \checkmark \text{A}} \times 100 \% \checkmark \text{MA}$ $= 14,29\% \checkmark \text{A}$	1A numerator 1A denominator 1MA percentage concept 1A answer NPR (4)	P L2 E
3.1.5	$\text{Probability (roses)} = 0 \checkmark \checkmark \text{A}$	2A Correct Answer (2)	P L2 E

3.2.1	Radius of the pond = $1,35 \text{ m} \div 2$ ✓MA $= 0,675 \text{ m}$ ✓A	1MA dividing by 2 1A correct answer AO (2)	M L1 E
3.2.2	Area of garden = $4,5 \text{ m} \times 3,2 \text{ m}$ ✓SF $= 14,4 \text{ m}^2$ ✓A Area of the pond = $3,142 \times (0,675 \text{ m})^2$ ✓SF $= 1,43157375 \text{ m}^2$ ✓CA Area of paving = $14,4 \text{ m}^2 - 1,43157375 \text{ m}^2$ $= 12,97 \text{ m}^2$ ✓CA	CA from Q3.2.1 1SF substitution 1A correct Area 1SF substitution 1CA correct Area 1CA Correct answer NPR (5)	M L3 M
3.2.3	Number of bricks = $12,97 \text{ m}^2 \div 0,45 \text{ m}^2$ ✓MCA $= 28,82$ ✓CA $= 29$ ✓R	CA from Q3.2.2 1MCA dividing by 0,45 1CA answer 1R rounding (3)	M L2 M
		[27]	

QUESTION 4 [24 MARKS]			
Ques	Solution	Explanation	T &L
4.1.1	$\text{Diameter} = 18\text{cm} \times \frac{2}{3} \checkmark \text{MA}$ $= 12\text{cm} \checkmark \text{A}$ $\text{Radius} = 12\text{cm} \div 2 \checkmark \text{MCA}$ $= 6\text{cm} \checkmark \text{CA}$ $\text{SA} = (2 \times 3,142 \times (6\text{cm})^2) + (2 \times 3,142 \times 6\text{cm} \times 18\text{cm}) \checkmark \text{SF}$ $= 904,896 \text{ cm}^2 \checkmark \text{CA}$	1MA multiplying by $\frac{2}{3}$ 1A correct answer 1MCA dividing by 2 1CA answer 1SF substitution 1CA correct answer (6)	M L4 D
4.1.2	$\text{SA} = 904,896 \text{ cm}^2 \div 100^2 \checkmark \text{C}$ $= 0,0904896 \text{ m}^2$ $\text{Number of cylinders} = 1\text{m}^2 \div 0,0904896 \checkmark \text{MCA}$ $= 11,05 \checkmark \text{CA}$ $= 11 \checkmark \text{R}$	CA from Q4.1.1 1C conversion 1MCA dividing by 0,0904896 1CA answer 1R rounding (4)	M L3 M
4.1.3	$\text{Weight of sweets in grams} = 0,45 \times 1000 \checkmark \text{C}$ $= 450\text{g} \checkmark \text{A}$ $\text{Number of sweets} = 450\text{g} \div 25 \checkmark \text{MA}$ $= 18 \checkmark \text{A}$ <p style="text-align: center;">OR</p> $\text{Weight of sweets in kg} = 25 \div 1000 \checkmark \text{C}$ $= 0,025 \text{ kg} \checkmark \text{A}$ $\text{Number of sweets} = 0,45 \div 0,025 \checkmark \text{MA}$ $= 18 \checkmark \text{A}$	1C conversion 1A Correct answer 1MA dividing by 25 1A correct answer <p style="text-align: center;">OR</p> 1C conversion 1A correct answer 1MA dividing by 0,025 1A correct answer (4)	M L3 M

<p>4.2.1</p>	<p>300kg = 300 litres 300 litres = 300 000cm³ ✓C Radius = 30cm ✓A 300 000cm³ = 3,142 × (30cm)² × height ✓SF Height = $\frac{300\ 000}{3,142 \times 900}$ ✓S = 106,09cm ÷ 100 = 1,06 m ✓CA The claim is incorrect ✓O</p>	<p>1C convert to cm³ 1A radius 1SF substitution 1S simplification 1CA answer 1O Conclusion NPR (6)</p>	<p>M L4 D</p>
<p>4.2.2</p>	<p>Capacity = 250ml × 95% ✓MA = 237,5ml 300 litres = 300 000 ml ✓C Number of bottles = 300 000ml ÷ 237,5ml ✓MCA = 1263,15 = 1263 ✓R</p>	<p>1 MA multiplying by 95% 1C convert to ml 1MCA dividing by 237,50 1R Rounding (4)</p>	<p>M L3 M</p>
		<p>[24]</p>	
		<p>TOTAL MARKS: 100</p>	