

QUESTION 3 [25 MARKS]			
Ques	Solution	Explanation	AS
3.1.1	<p>Distance around the pencil $= 6 \times 3 \text{ mm} \quad \checkmark M$</p> <p>$= 18 \text{ mm} \quad \checkmark A$</p> <p>Length of pencil covered by beads $= \frac{1}{3} \times 180 \text{ mm} \quad \checkmark C$</p> <p>$= 60 \text{ mm} \quad \checkmark A$</p> <p>Surface area of pencil covered by beads $\checkmark MA$</p> <p>$= 18 \text{ mm} \times 60 \text{ mm}$</p> <p>$= 1\,080 \text{ mm}^2 \quad \checkmark CA$</p> <p>OR</p> <p>Area of one of the beaded sides of the pencil</p> <p>$= 3 \text{ mm} \times \left(\frac{1}{3} \times 180 \text{ mm} \right) \quad \checkmark MA$</p> <p>$= 3 \text{ mm} \times 60 \text{ mm} \quad \checkmark CA$</p> <p>$= 180 \text{ mm}^2 \quad \checkmark CA$</p> <p>$\therefore$ Surface area of the pencil covered by beads</p> <p>$= 6 \times 180 \text{ mm}^2 \quad \checkmark CA$</p> <p>$= 1\,080 \text{ mm}^2 \quad \checkmark CA$</p>	<p>1M multiplying by 6</p> <p>1A distance</p> <p>1C conversion</p> <p>1A length</p> <p>1MA use of area formula</p> <p>1CA area of beaded section</p> <p>1MA use of area formula</p> <p>1C conversion</p> <p>1CA width</p> <p>1CA area of one beaded side</p> <p>1CA multiplying by 6</p> <p>1CA area of beaded section</p>	12.3.1

(6)

Ques	Solution	Explanation	AS
3.1.2	<p>Distance around the pencil = 18 mm</p> <p>∴ The number of beads = $18 \text{ mm} \div 1,5 \text{ mm}$ = 12 ✓CA</p> <p>Length of beaded area = 60 mm</p> <p>The number of beads = $60 \text{ mm} \div 1,5 \text{ mm}$ = 40 ✓M ✓CA</p> <p>So the number of beads needed = 12 + 40 = 480 ✓M ✓CA</p> <p>OR</p> <p>Width of one side of pencil = 3 mm</p> <p>Number of beads needed for width = $3 \text{ mm} \div 1,5 \text{ mm} = 2$ ✓A</p> <p>Length of pencil to be beaded = 60 mm</p> <p>Number of beads needed for length = $60 \text{ mm} \div 1,5 \text{ mm} = 40$ ✓A</p> <p>Number of beads needed for one side of pencil = 2 + 40 = 80 beads ✓CA</p> <p>Number of beads needed for six sides of pencil = 6 × 80 = 480 ✓CA</p>	<p>1M dividing</p> <p>1CA number of beads</p> <p>1M dividing</p> <p>1CA number of beads</p> <p>1M multiplying</p> <p>1CA solution</p> <p>1M dividing 1A number on width</p> <p>1M dividing 1A number on length</p> <p>1CA number on side</p> <p>1CA number on six sides</p>	<p>12.3.1 12.1.1</p> <p>(6)</p>
3.2.1	<p>Cost of labour (for beading) = $\frac{5}{60} \times R15,50$ = R1,29 ✓MA ✓CA</p> <p>Cost of beads = $\frac{480}{1\,000} \times R8,00$ = R3,84 ✓MA ✓CA</p> <p>Cost of pencil = $\frac{R30,00}{12}$ = R2,50 ✓MA ✓CA</p> <p>Total cost price of the beaded pencil = R1,29 + R3,84 + R2,50 = R7,63 ✓CA</p> <p>% Selling price = 100% + 35% = 135%</p> <p>Selling price = $\frac{135}{100} \times R7,63$ = 1,35 × R7,63 = R10,30 ✓MA ✓CA</p>	<p>1MA fraction and multiplication 1CA cost of labour 1MA fraction and multiplication 1CA cost of beads</p> <p>1MA dividing by 12</p> <p>1CA cost of one pencil</p> <p>1CA total cost of a pencil</p> <p>1M calculating increase %</p> <p>1CA cost of pencil</p>	<p>12.1.1</p> <p>(9)</p>
3.2.2	<p>Price of pencil = R10,30</p> <p>R1 = ARS 0,54895</p> <p>R10,30 = ARS 0,54895 × 10,30 = ARS 5,654185 ✓A</p> <p>Price of one pencil = ARS 5,654185 ✓CA</p> <p>Number of pencils = $\frac{\text{ARS } 100}{\text{ARS } 5,654185}$ = 17,686 ≈ 17 ✓M ✓CA</p>	<p>1A using the exchange rate</p> <p>1CA price of pencil in Argentinean peso 1M finding number of pencils</p> <p>1CA number of pencils</p>	<p>12.1.1</p> <p>(4)</p>

QUESTION 4 [34 MARKS]			
Ques	Solution	Explanation	AS
4.1.1	<p>METHOD 1</p> <p>Discount = 5% of R139 900 ✓M</p> <p>= $\frac{5}{100} \times R139\,900$ = 0,05 × R139 900 = R6 995,00 ✓A</p> <p>Price after discount = R139 900 – R6 995,00 = R132 905 ✓CA</p> <p>VAT = 14% of R132 905</p> <p>= $\frac{14}{100} \times R132\,905$ = R18 606,70 ✓CA</p> <p>Total cost including VAT = R132 905 + R18 606,70 = R151 511,70</p> <p>METHOD 2</p> <p>Price after discount = 95% of R139 900 ✓M</p> <p>= $\frac{95}{100} \times R139\,900$ = 0,95 × R139 900 = R132 905 ✓CA</p> <p>Total cost including VAT = 114% of R132 905 ✓M</p> <p>= $\frac{114}{100} \times R132\,905$ = 1,14 × R132 905 = R151 511,70 ✓CA</p> <p>Pre-delivery cost = 0,75% of R151 511,70</p> <p>= $\frac{0,75}{100} \times R151\,511,70$ = 0,0075 × R151 511,70 = R 1 136,34 ✓CA</p> <p>Full purchase cash price = R151 511,70 + R 1 136,34 + R1 400,00 + R4 950,00 = R158 998,04 ✓CA</p>	<p>1M calculating %</p> <p>1A calculating 5%</p> <p>1CA cash price (ex VAT)</p> <p>OR</p> <p>1M subtracting from 100%</p> <p>1M calculating percentage</p> <p>1CA discounted price</p> <p>1M adding 14%</p> <p>1CA price including VAT</p> <p>OR</p> <p>1CA calculating VAT</p> <p>1CA cash price (incl. VAT)</p>	<p>12.1.3</p> <p>(8)</p>

Ques	Solution	Explanation	AS
4.1.2	<p>Deposit = 20% of R158 998,04 = R31 799,61 ✓CA</p> <p>Amount to be financed ✓M = R158 998,04 – R31 799,61 = R127 198,43 ✓CA</p> <p>OR</p> <p>% to be financed = 100% – 20% = 80% ✓CA</p> <p>Amount to be financed = $\frac{80}{100} \times R158\,998,04$ ✓M = 0,8 R158 998,04 = R127 198,43 ✓CA</p> <p>A = $P(1 + i \cdot n)$ = R127 198,43 (1 + 0,12 5) ✓SF ✓A = R203 517,49 ✓CA</p> <div style="border: 1px solid black; padding: 5px;"> <p>METHOD 1</p> <p>Monthly instalment = $\frac{R203\,517,49}{60}$ ✓M = R3 391,95816.. ≈ R3 391,96 ✓CA</p> <p>The monthly instalment is over by R7,04 ✓J</p> <p>METHOD 2</p> <p>R3 399,00 60 ✓M = R203 940,00 ✓CA</p> <p>The monthly instalment is over by R422,51 over the 60 months. ✓J</p> </div>	<p>1CA deposit amount</p> <p>1M subtracting 1CA amount financed</p> <p>1CA correct %</p> <p>1M calculating %</p> <p>1CA amount financed</p> <p>1SF substituting P 1A value of i 1CA amount to be repaid</p> <p>1M dividing by 60</p> <p>1CA monthly instalment</p> <p>1J conclusion</p> <p>1M multiplying by 60</p> <p>1CA total paid</p>	<p>12.1.3</p> <p>(9)</p>
4.2	<p>Area to be paved ✓MA = 2,99 m 10,35 m = 30,9465 m² ✓CA</p> <p>Area of the top face of a brick = 23 cm 11,5 cm ✓MA = 264,5 cm² = 0,02645 m² ✓CA</p> <p>Number of bricks = $\frac{30,9465\text{ m}^2}{0,02645\text{ m}^2}$ ✓M = 1 170 bricks ✓CA</p> <p>Number of pallets = $\frac{1\,170}{354}$ ✓M = 3,305 ✓CA</p> <p>So, 4 pallets will be needed</p> <p>OR</p>	<p>1MA using area formula 1CA paving area</p> <p>1MA using area formula</p> <p>1A area of each brick 1C converting</p> <p>1M dividing</p> <p>1CA number of bricks</p> <p>1M dividing by 160</p> <p>1CA number of pallets</p>	<p>12.3.1</p>

Ques	Solution	Explanation	AS
	<p>2,99 m = 299 cm ✓C</p> <div style="border: 1px solid black; padding: 5px;"> <p>METHOD 1</p> <p>Number bricks lengthwise</p> $= \frac{299 \text{ cm}}{23 \text{ cm}}$ <p>= 13 bricks</p> <p>METHOD 2</p> <p>Number of bricks lengthwise</p> $= \frac{299 \text{ cm}}{11,5 \text{ cm}} \quad \checkmark \text{M}$ <p>= 26 bricks ✓CA</p> </div> <p>10,35 cm = 1 035 cm ✓C</p> <div style="border: 1px solid black; padding: 5px;"> <p>METHOD 1</p> <p>Number of bricks breadthwise</p> $= \frac{1 \ 035 \text{ cm}}{11,5 \text{ cm}}$ <p>= 90 bricks ✓CA</p> <p>METHOD 2</p> <p>Number of bricks breadthwise</p> $= \frac{1 \ 035 \text{ cm}}{23 \text{ cm}}$ <p>= 45 bricks ✓CA</p> <p>Total number of bricks</p> <p>= 13 90 ✓CA</p> <p>= 1 170 bricks ✓CA</p> <p>Total number of bricks</p> <p>= 26 45 ✓CA</p> <p>= 1 170 bricks ✓CA</p> </div> <p>Number of pallets</p> $= \frac{1 \ 170}{354} \quad \checkmark \text{M}$ <p>= 3,305</p> <p style="text-align: right;">✓CA</p> <p>So, 4 pallets will be needed</p>	<p>1C conversion</p> <p>1M dividing</p> <p>1CA no. of bricks</p> <p>1C conversion</p> <p>1CA no of bricks</p> <p>1CA multiplying</p> <p>1CA total no. of bricks</p> <p>1M dividing</p> <p>1CA no. of pallets</p>	(9)
4.3.1	<p>Delivery charge</p> <p>✓A ✓A ✓A</p> <p>= R95 + R5,45 (no of kilometres above 10 km)</p> <p>OR ✓A ✓A</p> <p style="text-align: right;">✓A</p> <p>Delivery = R 95 + R5,45 × (total distance – 10 km)</p>	<p>1A constant amount</p> <p>1A rate per km</p> <p>1A correct equation</p> <p>1A constant amount</p> <p>1A rate per km</p> <p>1A correct equation</p>	<p>12.2.1</p> <p>(3)</p>
4...3.2	<p>Delivery charge by ABC Transport</p> <p>= R95 + R5,45 (35 km – 10 km) ✓SF</p> <p>= R95 + R5,45 25 km</p> <p>= R 231,25 ✓A</p> <p>Friend's charge = R250,00</p> <p>Ravi should use ABC ✓CA</p> <p>transport because he would save R18,75 ✓✓J</p>	<p>1SF substitution</p> <p>1A delivery charge</p> <p>1CA choice</p> <p>2J justification</p>	<p>12.2.1</p> <p>(5)</p>

Question 5 [18 MARKS]			
Ques	Solution	Explanation	AS
5.1.1	Capacity = 2,5 m 2,5 m 2 m ✓SF = 12,5 m ³ ✓CA = 12,5 kℓ ✓C	1SF substitution 1CA computation 1C converting to kℓ (3)	12.3.1 12.3.2
5.1.2	65% of capacity = 0,65 of 12,5 kℓ = 8,125 kℓ ✓A Full output = 3,6 kℓ /hour $\frac{2}{3}$ of output = $\frac{2}{3}$ 3,6 kℓ /hour ✓M = 2,4 kℓ /hour ✓CA Time taken to fill 65% = $\frac{8,125\text{ kℓ}}{2,4\text{ kℓ / hour}}$ ✓M = 3,385... hours ✓CA = 3 hours + 0,385... 60 min = 3 hours + 23,125 minutes = 3 h 24 min ✓CA	1A 65% of tank 1M multiplication 1CA operating output rate 1M finding time 1CA time in hours 1CA time in minutes and hours (6)	12.1.1 12.2.1 12.3.2
5.2.1	Daily water consumption = 40 90 + 20 50 + 30 50 + 50 51 ✓M = 6 350 ✓CA = 6,350 kℓ ✓C	2M substitution 1CA simplification 1C conversion (4)	12.2.1 12.3.1 12.3.2
5.2.2	Water needed for ten days = 6,35 kℓ 10 ✓M = 63,5 kℓ = 63,5 m ³ ✓C 3,14 (radius) ² 2 m ✓SF = 63,5 m ³ $(\text{radius})^2 = \frac{63,5\text{ m}^3}{3,14 \times 2\text{ m}}$ $(\text{radius})^2 = 10,111... \text{ m}^2$ ✓CA $\text{radius} = \sqrt{10,111... \text{ m}^2}$ $\text{radius} = 3,17985... \text{ m}$ $\text{radius} = 3,18 \text{ m}$ ✓CA	1M multiplication 1C conversion 1SF substitution 1CA simplification 1CA solution (5)	12.1.1 12.2.1 12.3.2

TOTAL: 150