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KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA



NATIONAL SENIOR CERTIFICATE

GRADE 11

MATHEMATICAL LITERACY

COMMON TEST

SEPTEMBER 2022

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MARKS: 100

TIME: 2 hours

This question paper consists of 10 pages,
1 answer sheet 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 3.1
   - ANNEXURE B for QUESTION 4.2

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 the final answers appropriately according to the given context, unless stated otherwise.

8. Indicate units of measurements, where applicable.

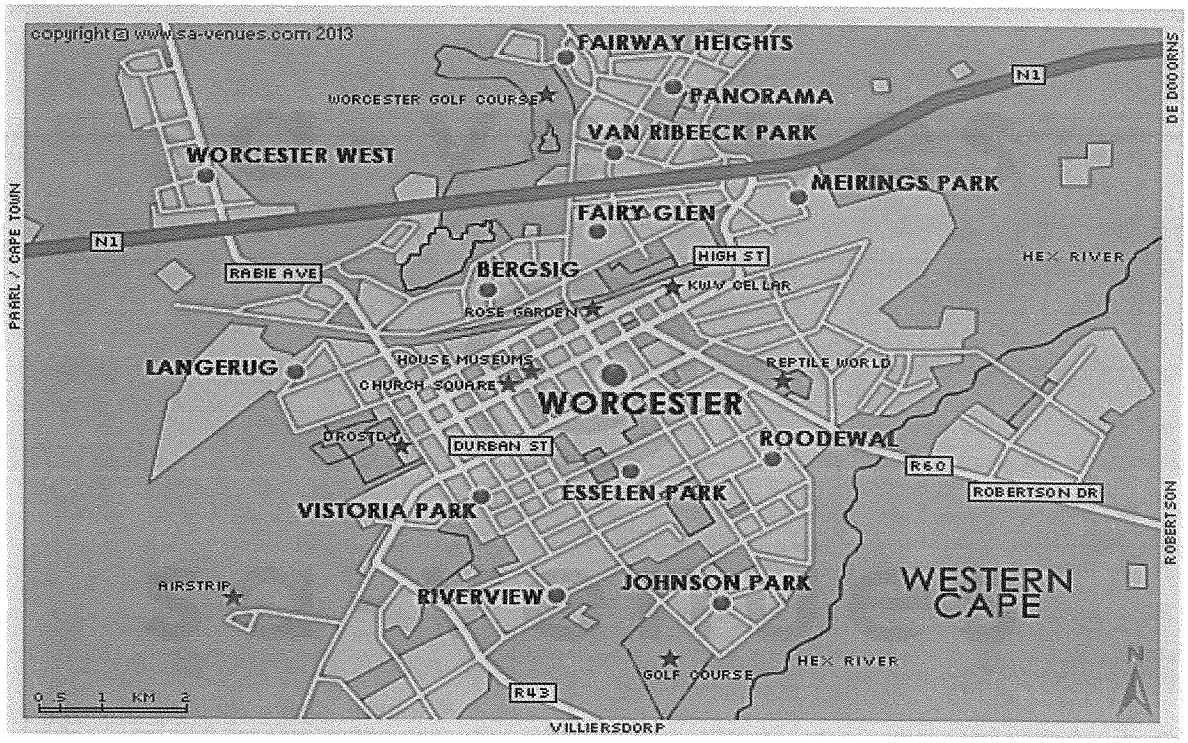
9. Maps and Diagrams are NOT necessary drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

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QUESTION 1

1.1 Study the map of Worcester in the Western Cape below and answer the questions that follow.



[Source:https://www.sa-venues.com/maps/westerncape/worcester.php]

1.1.1 Give the general direction of BERGSIG from ROODEWAL. (2)

1.1.2 Write down the type of sport that is played in the vicinity of JOHNSON PARK . (2)

1.1.3 Name one national road found on the map. (2)

1.1.4 Measure the map distance in millimetres between VISTORIA PARK and PANORAMA. (2)

1.2 The table below shows how the food prices have changed from 2017 to 2021 in South Africa. Study TABLE 1 and answer the questions that follow.

TABLE 1: SOUTH AFRICA FOOD PRICE CHANGES FROM 2017 TO 2021

Product	Description	2017	2018	2019	2020	2021	5-year %
Apples	1,5kg	R21,49	R24,74	R28,74	R27,74	R28,49	33%
Bread	Brown, one loaf	R9,67	R9,99	R10,37	R11,24	R12,37	28%
Cabbage	One head	R14,99	R13,74	R16,49	R17,49	R14,74	-2%
Coca Cola	2 litres	R16,11	R16,69	R21,99	R22,12	R22,62	40%
Eggs	6 extra-large	R17,99	R20,61	R20,24	R20,49	R20,12	12%
Flour	Self-raising, 2,5kg	R36,59	R38,95	R41,24	R45,74	R42,74	17%
Maize	2,5kg	R25,48	R22,24	R25,49	R25,49	R26,49	4%
Margarine	500g	R23,99	R26,61	R32,24	R24,99	R26,49	10%
Milk	Full cream, 2 litres	R25,23	R26,68	R26,23	R29,49	R32,24	28%
Rice	2kg	R25,73	R23,53	R22,97	R32,24	R30,49	18%
Sugar	White, 2,5kg	R37,73	R36,64	R38,49	R45,74	R45,74	21%
Tea	100 bags	R20,60	R30,64	R28,74	R33,24	R32,49	58%
Total		R275,59	R291,05	R313,22	R336,01	R335,01	22%

[Source: http:businesstech.co.za]

1.2.1 Identify the modal price for the year 2021. (2)

1.2.2 Determine the cost price of ONE egg in 2020 from the table. (2)

1.2.3 Convert 500g margarine mass into kilograms. (2)

1.2.4 Name ONE product that indicated the same price between 2020 and 2021. (2)

1.3 On 3rd of July 1967 the first two ounce (2oz) Kruger rand coin was introduced and minted* in South Africa and stopped in some years later, but in 2018 the 2oz gold proof was re-launched due to its popularity.

Picture of the coin	Characteristics of a coin
2OZ GOLD PROOF KRUGERRAND 	Diameter = 40mm Mass= 67,86g Quantity units = 400

[Source: https://scoinshop.com/products/kruger]

*Coin Minting - **the process of manufacturing coins using a kind of stamping.**

1.3.1 Write down the year in which the recent gold Kruger rand was minted. (2)

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1.3.2 Calculate the total mass of 400 Kruger rand coins produced in South Africa. (2)

1.3.3 Which of the following formula will be used to calculate the circumference of the coin?

Write **ONLY** the letter of the correct answer.

A. Circumference $= \pi \times 40cm \times 40cm$

B. Circumference $= 2 \times 3.142 \times 40mm$

C. Circumference $= 2 \times 3.142 \times 20mm$

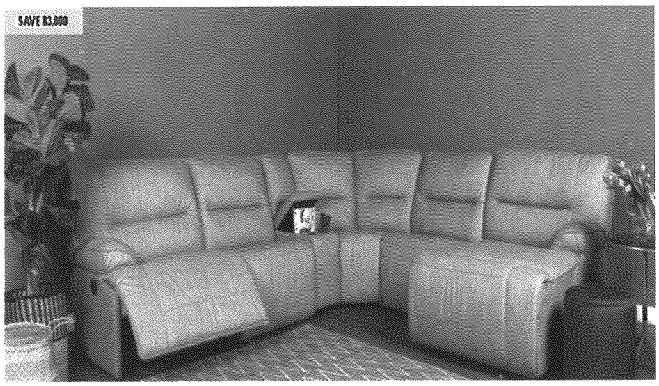
D. Circumference $= 3.142 \times 40m$ (2)

[22]

QUESTION 2

2.1 Ms Clementine wishes to purchase the lounge suite for her house, the store offers her different purchase options.

Tucson 5 piece corner lounge suite in fabric



On Promotion.
Option 1:
Cash price R29 995
Save R3000

Option 2 :
Pay as little as R1470 for 36 months

Option 3 :
Get it on lay-bye for
R2 500 for 12 months

[Source: https://www.everyshop.co.za/Tuscan]

Study the information above and answer the questions that follow.

2.1.1 Calculate the final amount Ms Clementine will have to pay for the lounge suite if she chooses **Option 2**. (2)

2.1.2 Determine the original price of the lounge suite before the discount. (2)

2.1.3 Hence, calculate the percentage discount of the lounge suite.

You may use the formula:

$$\%\ \textbf{discount} = \frac{\boldsymbol{New\ amount - Original\ amount}}{\boldsymbol{Original\ amount}} \times 100\% \quad (3)$$

2.1.4 Ms Clementine states that **Option 2** has more interest than **Option 3** when the final totals are compared.

Critically comment on her statement and verify by showing ALL necessary calculations. (5)

2.1.5 Ms Clementine decided to borrow R30 000 from the bank for 4 years at an interest of 18% p.a simple interest.

Calculate how much the interest of her loan will be after FOUR years. (3)

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2.2 Ms Clementine buys wall clocks for R425 and sells them for R675.

Invoice order

Invoice No: 035 422 1468

Total Payment received: R6 375

Unit price : R425

Initial balance : R3 372

This invoice : R3 000

VAT (15%) :R831.52

Initial date : 15/05/2022

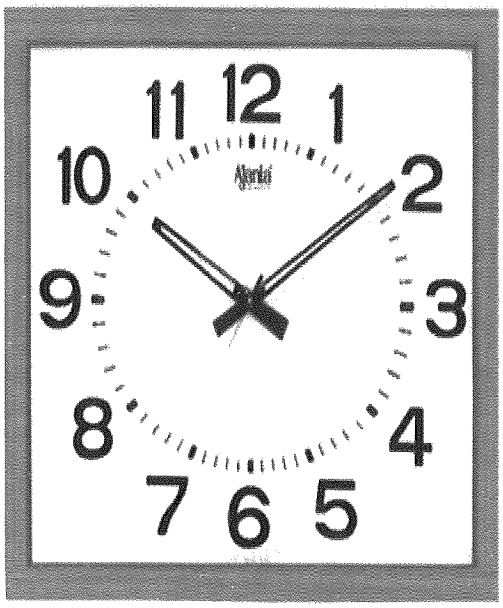
Current date : 25/05/2022

Order will be delivered within 5 days

Pi-ART ITEMS

BOX 1750

Type of wall clocks



[Source:http//.www.indiamart.com]

Use the information above and answer the questions that follow.

2.2.1 Write down the time on the clock using the 24 hour format, if it represents time in the evening. (2)

2.2.2 Determine the number of wall clocks Ms Clementine purchased in this order. (2)

2.2.3 Show by calculations how the amount of R831.52 was calculated. (2)

2.2.4 Ms Clementine made a withdrawal of R3000 from her savings account at the ATM machine to pay for the clocks. The bank withdrawal charges are R34 +1.25% of the value (maximum R3000).

Calculate her total bank charges for this withdrawal. (2)

2.2.5 If she rents R5 000 in a market to sell her clocks, determine the number of clocks she needs to sell in order to break even.
You may use the formula:

$$\textbf{Break even value} = \frac{\textit{Fixed cost}}{\textit{Profit per wall clock}}$$ (3)

[26]

QUESTION 3

3.1 ANNEXURE A shows the house plan of the house Mr Paul intends to buy.
Study the floor plan on ANNEXURE A of Mr Paul's house and answer the questions that follow.

3.1.1 Calculate the total interior floor area of the house in square metres. (2)

3.1.2 Hence show by calculations that the area of the main bedroom occupies 18% of the total interior area of the house. (2)

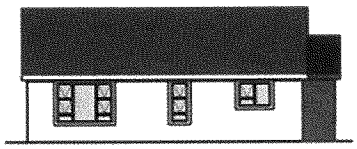
3.1.3 Determine the scale used to produce the floor plan to the nearest ten, if the measured length of the northern wall is 10.9cm. (4)

3.1.4 The ratio length of the patio to the width of the patio is **2.087:1**, with the necessary calculations, determine the width of the patio in metres if the length of the patio is 5.5m. (2)

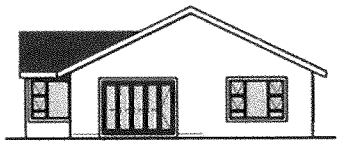
3.1.5 Give the name of the item that can be represented by a square shape in the lounge. (2)

3.1.6 Which of the following elevations represents the south elevations of Mr Paul's house?

A



B



(2)

3.1.7 Give the name of ONE possible structural building that Mr Paul can alter on this house on the eastern elevation with enough space. (2)

3.2 TABLE 2 below shows the average costs of building a residential house by a private constructor in South Africa from the first quarter in 2015 to the first quarter in 2018.

TABLE 2: BUILDING COST OF NEW HOUSING CONSTRUCTED

Building cost of new housing constructed[1]						
Period	Houses of <80m²		Houses of ≥80m²		Flats and townhouses	
	Rand per m²	y/y% change	Rand per m²	y/y% change	Rand per m²	y/y% change
1Q 2015	3 794	25.8	6 129	3.3	6 943	4.5
2Q 2015	3 810	4.5	6 330	5.2	6 845	8.4
3Q 2015	3 887	4.7	6 465	2.0	7 493	18.1
4Q 2015	3 977	0.8	6 573	5.7	7 436	10.1
1Q 2016	4 176	10.1	6 474	5.6	7 384	6.3
2Q 2016	4 076	7.0	6 502	2.7	7 517	9.8
3Q 2016	4 714	21.3	6 753	4.5	7 920	5.7
4Q 2016	4 715	18.6	6 962	5.9	7 799	4.9
1Q 2017	4 986	19.4	7 121	10.0	8 010	8.5
2Q 2017	4 290	5.2	7 078	8.9	7 995	6.4
3Q 2017	5 030	6.7	7 269	7.6	8 222	3.8
4Q 2017	5 311	12.7	7 213	3.6	8 364	7.2
1Q 2018	5 482	9.9	7 344	3.1	7 948	-0.8

[Source: https://www.statssa.gov.za/]

Study TABLE 2 above and answer the questions that follow.

3.2.1 Arrange in a descending order the year to year (y/y %) change for a house less than $80m^2$ in the first quarter from 2015 to 2018. (2)

3.2.2 Define the term *inflation* according to the given context. (2)

3.2.3 Calculate the mean of the year to year percentage change for building a flat and townhouse from 2015 to 2018. (3)

3.2.4 Write down the average cost in rand per m^2 in words of a house that is $100m^2$ during second quarter in 2016. (2)

3.2.5 Identify the quarter that indicated the decrease in rand per m^2 for flats and townhouses construction, then calculate the difference in the cost. (3)

3.2.6 The ANSWER SHEET shows the bar graph for the estimated rand per m^2 and year to year percentage change for the second quarter from 2015 to 2018 of a house less than $80m^2$.

If the 2018 rand per $80m^2$ was R4 103 and the year to year percentage change of 5.6%, complete the graph for 2018 on the ANSWEER SHEET provided. Write your NAME and hand in your answer sheet with your answer script. (4)

[32]

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QUESTION 4

4.1 A company in Mtunzini manufactures cans and packs them into large rectangular boxes for deliveries. Below are the measurements of the box, and the measurements of the cans produced by the company.

Cylindrical cans arrangement	Large Rectangular box
Radius = 5cm and height = 11cm	Length = 51cm width 43cm and height = 33cm





[source:www.industrialpackaging.com]

Study the information above and answer the questions that follow.

4.1.1 Identify the type of arrangement used in the picture to pack cans. (2)

4.1.2 Determine the diameter of ONE cylindrical can in centimetres. (2)

4.1.3 Determine the maximum number of cans that can be packed in ONE box if they are packed upright into a box. (5)

4.1.4 Determine the minimum height of the box that has a three by four (3 by 4) arrangement to pack 24 cans upright. (2)

4.1.5 The delivery truck travels at an average speed of 80km/h for 2.5 hours. Determine the distance it will have covered from the company.

You may use the formula:

$$\textbf{Speed} = \frac{\boldsymbol{Distance}}{\boldsymbol{Time}}$$ (3)

4.2 ANNEXURE B in the addendum shows the tree diagram for different cans produced by the company. Use ANNEXURE B to answer the following questions.

4.2.1 Explain the term *outcome* according to the given context. (2)

4.2.2 Write down description for **P** and **Q** on the tree diagram respectively. (2)

4.2.3 Determine the probability as percentage that the can produced is in a rectangular shape. (2)

[20]

TOTAL MARKS:100

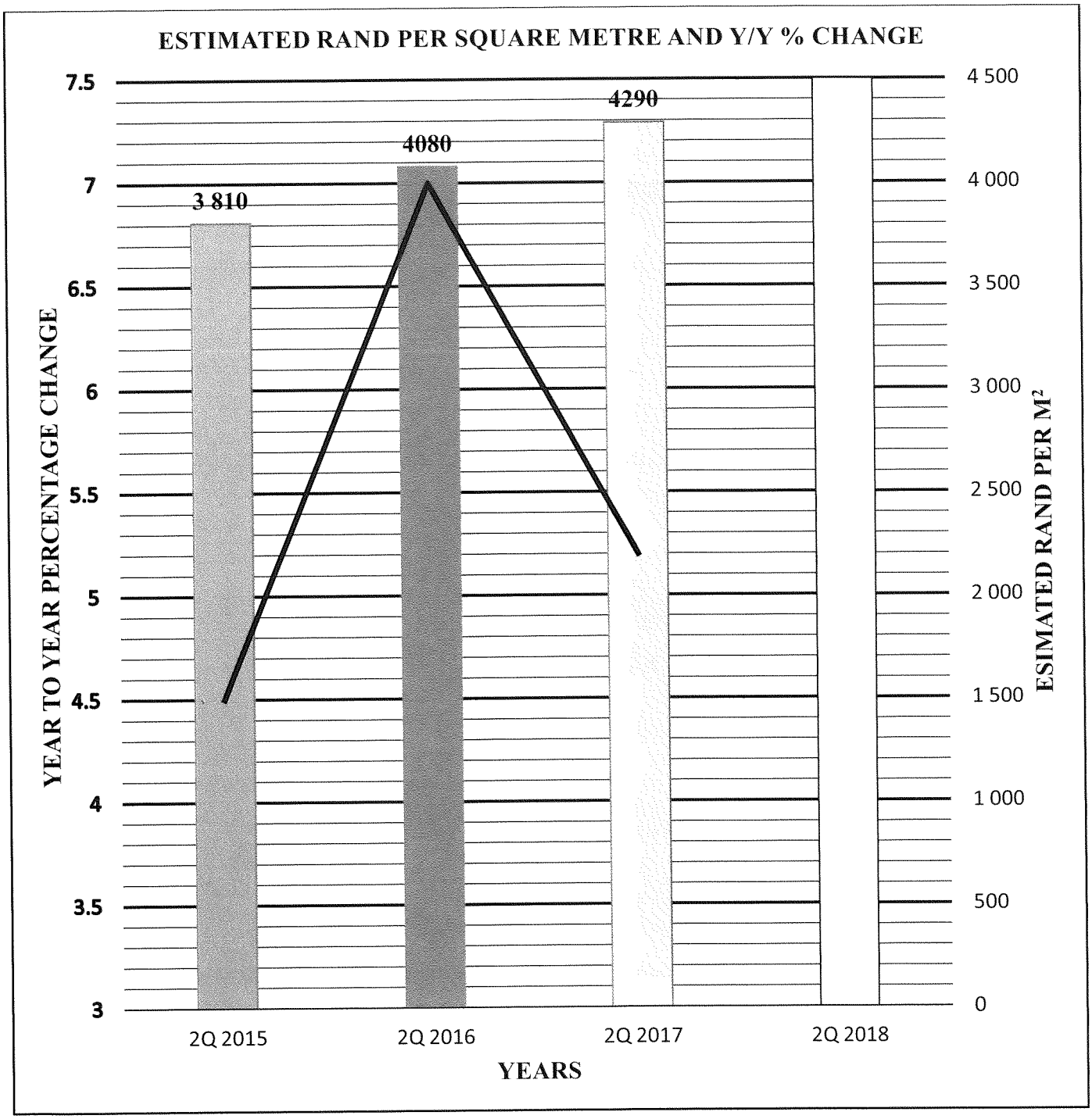
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PLEASE TEAR ON DOTTEL LINE

ANSWER SHEET

QUESTION 3.2.6

NAME: _____ **GRADE 11:** _____



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ADDENDUM

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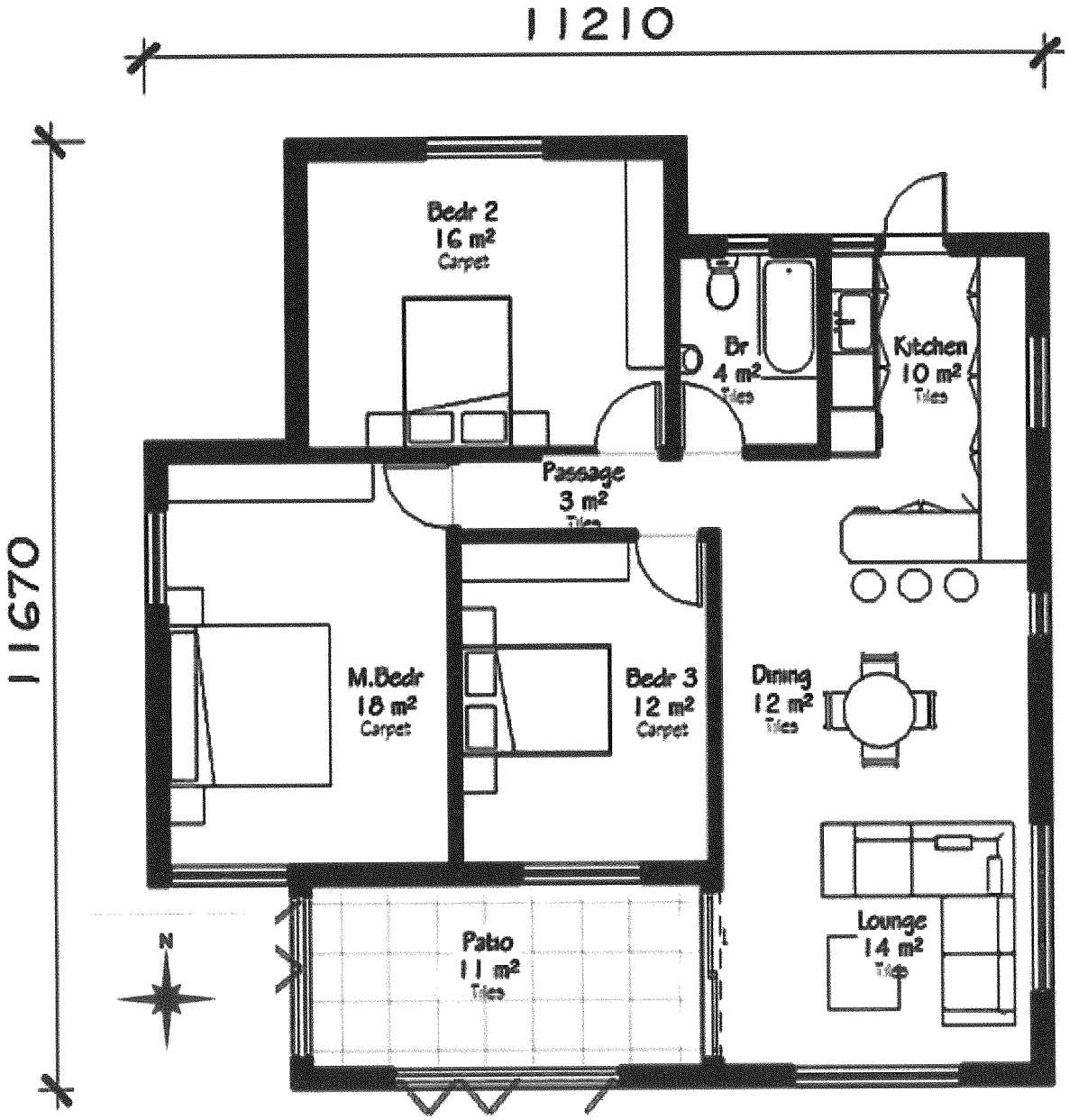
SEPTEMBER 2022

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ANNEXURE A

QUESTION 3.1

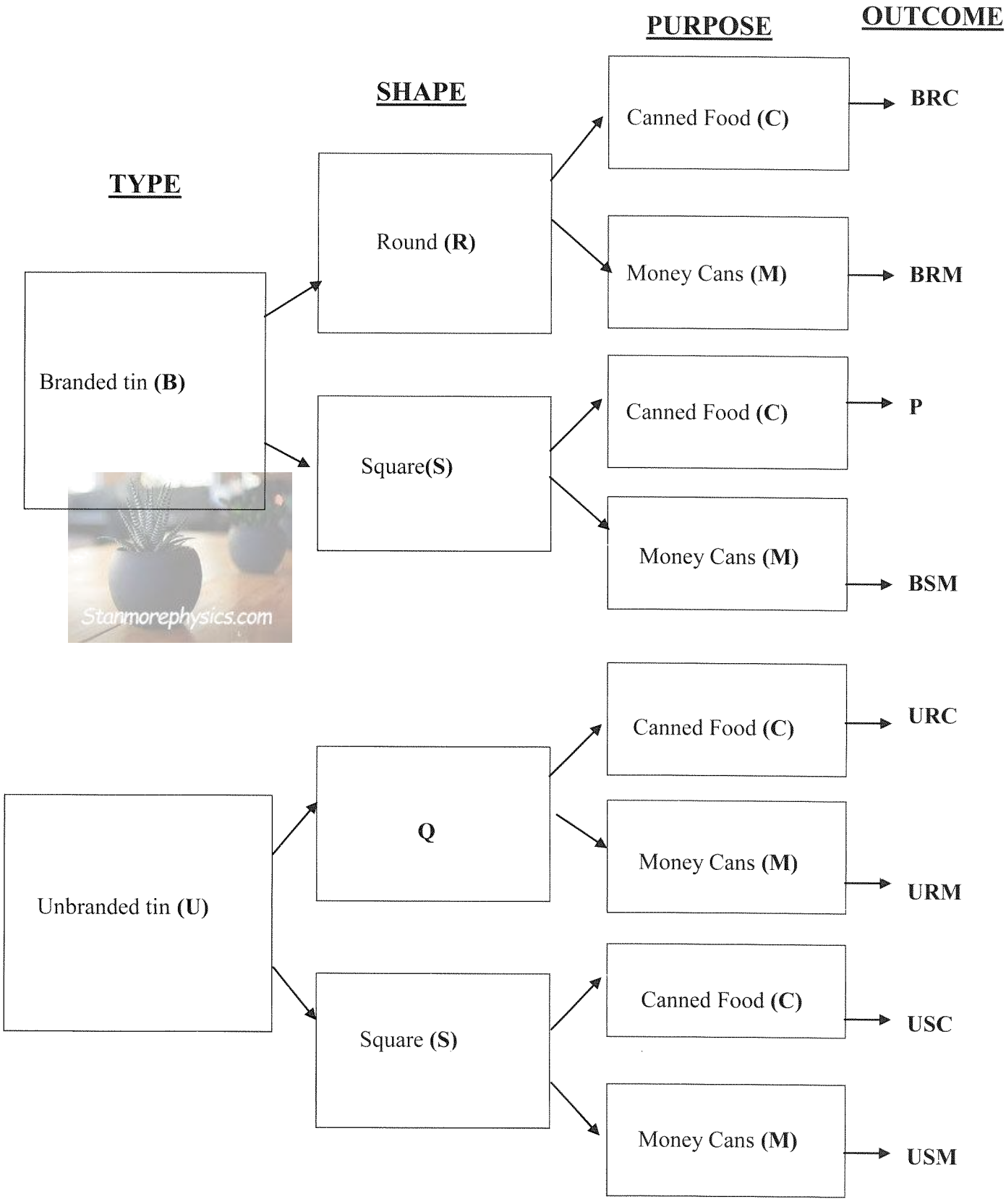


[Source: https://www.archid.co.za/read-house-plans-floor-plans/]

ANNEXURE B

QUESTION 4.2

TREE DIAGRAM FOR DIFFERENT TIN PRODUCED



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MARKING GUIDELINE

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MARKS: 100

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy (Answer)
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/ graph/ diagram
NPR	No penalty for units/rounding
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example
J	Justification
R	Rounding off/
F	deriving a formula
E	Explanation
U	Units
AO	Answer only full marks

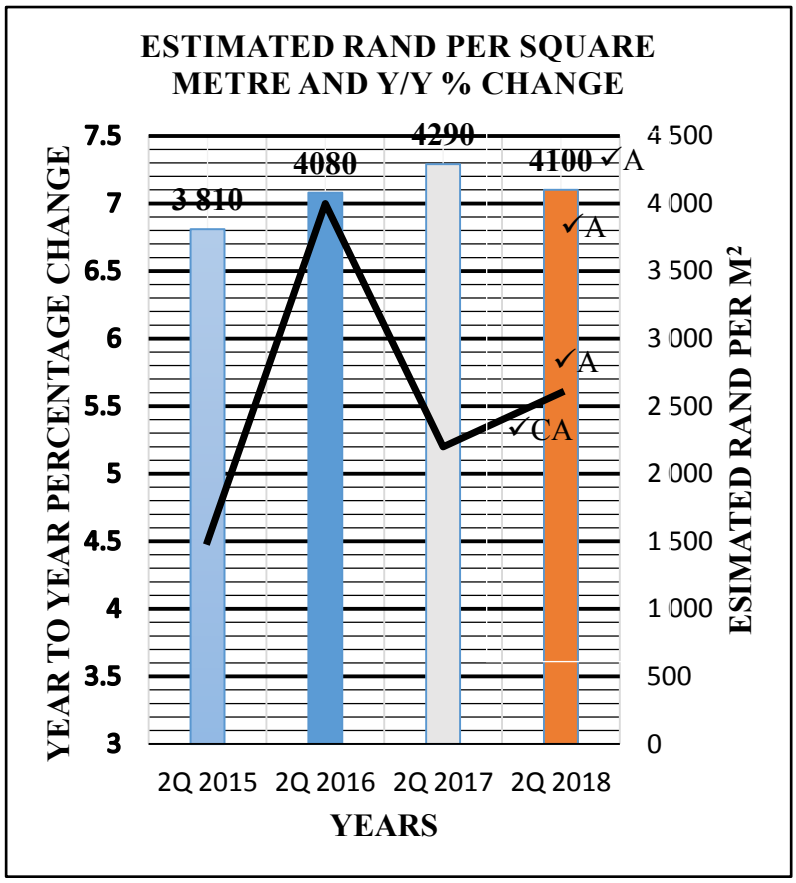
This marking guideline consists of 6 pages.

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QUESTION 1 [22 MARKS]			
QUE	**SOLUTION**	**EXPLANATION**	**L/T**
1.1.1	North west (NW)✓✓A	2A, Direction (2)	L1 MP
1.1.2	Golf ✓✓RT	2RT, Answer (2)	L1 MP
1.1.3	N1 ✓✓RT.	2RT, Answer (2)	L1 MP
1.1.4	60mm✓✓A	2A, Correct Distance **Allow $\pm$ 1mm** (2)	L1 M
1.2.1	R26.49✓✓RT	2RT, Correct Answer (2)	L1 DH
1.2.2	Price per egg = $\frac{R20.49}{6}$✓MA = R3.42 ✓CA	1MA, Dividing correct cost by 6 1CA, Price per egg **AO** (2)	L1 F
1.2.3	Mass = $\frac{500g}{1000}$ ✓C = 0.5kg✓A	1C, Conversion 1A, Answer **AO** (2)	L1 M
1.2.4	Sugar ✓✓RT	2RT, Sugar (2)	L1 F
1.3.1	2019✓✓RT	1RT, Correct year (2)	L1 M
1.3.2	Total mass = 67.86g×400✓MA = 27 144g ✓A	1MA, Multiplying the mass by 400 1A, Answer **AO** (2)	L1 M
1.33	C ✓✓A	2A, Answer **Accept $2 \times 3.142 \times 20mm$** (2)	L1 M
		[22]	

QUESTION 2 [26 MARKS]			
QUE	**SOLUTION**	**EXPLANATION**	**L/T**
2.1.1	Final amount = R1470 ×36 months ✓M = R52 920✓A	1M, Multiplication 1A, Answer **AO** (2)	L2 F
2.1.2	Original price = R29 995 + R3 000 ✓M = R32 995✓A	1M, Adding the discount 1A, Answer **AO** (2)	L2 F
2.1.3	✓SF %discount = $\frac{R29\,995-R32\,995}{R32\,995} \times 100\%$✓S = - 9.09% ✓CA **OR** ✓M %discount = $\frac{R3000}{R32\,995} \times 100\%$ ✓S = 9.09% decrease ✓CA **OR** ✓M %discount = $\frac{R29\,995}{R32\,995} \times 100\%$ = 90,9077 % -100% ✓S =- 9.09% ✓CA	**CA from 2.1.2** 1SF, Correct Substitution 1S, Simplification 1CA, Answer **OR** 1M, Dividing Discount by original price 1S, Simplification 1CA, Answer **OR** 1M, Dividing cash price by original price 1S,Subtracting 100% 1CA, Answer (3)	L3 F
2.1.4	Option2 = R52 920 ✓CA Option 3 = R2 500 × 12 months✓M =R30 000 ✓A Ms Clementine is correct, ✓O the longer the term the more interest is paid ✓O	**CA from 2.1.1** 1CA, Correct option 2 reading 1M, Multiplying by 12 1A, Answer 1O, Opinion 1O, Reasoning (5)	L4 F
2.1.5	✓M Interest = $\frac{18}{100} \times R30\,000$ =R5 400× 4 years✓MA =R21 600 ✓A	1M, Percentage interest 1MA, multiplying by 4yrs 1A, Total interest (3)	L2 F
2.2.1	22:10 ✓✓A	2A, Correct time format (2)	L2 M
2.2.2	No. of clocks = $\frac{R6372}{R425}$✓M =15 ✓A	1M, Dividing by total cost by 425 1A, Number of clocks **AO** (2)	L2 F
2.2.3	✓M VAT amount = $\frac{15}{115} \times R6\,375$ ✓MA = R812.52	1M, Multiplying total price by 15% 1MA, Dividing by 115% (2)	L2 F
2.2.4	Fee = R34 + $\frac{1.25}{100} \times R3000$ ✓M =R71.50 ✓CA	1M, Multiplying rate by R3000 1CA, Answer (2)	L2 F
2.2.5	Break even point = $\frac{R5000}{R675-R425}$✓M = $\frac{R5000}{R250}$✓SF = 20✓A	1M, Calculating profit 1SF, Correct substitution and simplification 1A, Answer (3)	L3 F
		[26]	

QUESTION 3 [32 MARKS]			
QUE	**SOLUTION**	**EXPLANATION**	**L/T**
3.1.1	✓M Total area = 16 +4+10+3+12+12+18+11+14 = 100m^2✓CA	1M, Adding correct values 1CA, Total area **AO** (2)	L2 M
3.1.2	✓M % area = $\frac{18m^2}{100m^2} \times 100\%$ ✓MA = 18%	**CA from 3.1.1** 1M, Dividing correct values 1MA, Percentage concept (2)	L2 M
3.1.3	10.9cm :11210mm ✓C 109mm : 11210mm✓RT 109mm 109mm 1 : 102.844036 ✓CA 1 :100 ✓R	1C, Conversion 1RT, Correct actual length 1CA, Answer 1R, Rounding (4)	L3 MP
3.1.4	Width = $\frac{5.5m}{2,087}$✓MA =2,635 =2.6m✓A	1MA, Dividing by ratio 1A, Correct width **NPR** (2)	L3 M
3.1.5	Coffee table✓✓A	2A, Answer **Accept table** (2)	L4 MP
3.1.6	B ✓✓RT	2RT, Correct elevation (2)	L4 MP
3.1.7	Garage✓✓O **OR** Car port✓✓O	2O, Opinion (2)	L4 MP
3.2.1	25.8; 21.3; 19.4; 18.6; 12.7; 10.1; 9.9; 7.0; 6.7; 5.2; 4.7; 4.5; 0.8 ✓✓A	2A, Descending order (2)	L1 DH
3.2.2	Inflation – is the general increase or decrease in the price of the building cost of new house in South Africa. ✓✓E	2E, Correct Definition **General definition: 1out of 2 marks** (2)	L1 F
3.2.3	Mean = ✓M $\frac{4,5+8,4+18,1+10,1+6,3+9,8+5,7+4,9+8,5+6,4+3,8+7,2+(-08)}{13}$ Mean = $\frac{92,9}{13}$ ✓MA = 7.146 = 7.1✓CA	1M, Adding correct values 1MA, Dividing total percentage 1CA, Answer **NPR** (3)	L2 DH
3.2.4	Six thousand five hundred and two rands ✓✓A	2A, Amount in words (2)	L2 DH
3.2.5	Q1 or First quarter 2018 ✓RT ✓MA Difference = R8 010 – R7 948 = R62 ✓CA	1RT, Correct quarter 1MA, Subtracting values 1CA, Answer (3)	L3 DH

3.2.6		1A, Correct bar (4 100) 1A, Correct point (5.6%) 1CA, Joining points 1A, Data label of 4100 (4)	L4 DH
		[32]	



QUESTION 4 [20 MARKS]			
QUE	**SOLUTION**	**EXPLANATION**	**L/T**
4.1.1	5 by 4 or 4 by 5 arrangement ✓✓A	2A, Answer (2)	L1 MP
4.1.2	Diameter = 5cm × 2 ✓MA = 10cm ✓A	1MA, Multiplying radius by 2 1A, Correct diameter **AO** (2)	L1 M
4.1.3	Length = $\frac{51cm}{10cm}$✓M = 5,1 = 5 cans ✓CA Width = $\frac{43cm}{10cm}$ = 4,3 = 4 cans ✓CA Height = $\frac{33cm}{11cm}$ = 3 cans✓CA Total = 5 ×4×3 = 60 cans ✓CA	**CA from 4.1.2** 1M, Dividing length by diameter 1CA, No of cans length wise 1CA, No of cans width wise 1CA, No of cans height wise 1CA, Total No of cans (5)	L3 MP
4.1.4	Height of box = $2 \times 11cm$✓MA = 22 cm✓CA	1MA, Multiplying by 2 1CA, Answer (2)	L3 M
4.1.5	Distance = 80km/h × 2.5h ✓SF = 200 km ✓A✓U	1SF, Correct substitution 1A, Answer 1U, Units (3)	L2 M
4.2.1	Outcome – means the possible result of the probability events. ✓✓E	2E, Explanation (2)	L1 P
4.2.2	**P** = BSC ✓A **Q** = ROUND(R) ✓A	1A, Correct outcome 1A, Correct event (2)	L2 P
4.2.3	0% ✓✓A	2A, Correct answer (2)	L1 P
		[20]	
		TOTAL MARKS: 100	

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