education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

Stanmorephysics.com

MATHEMATICAL LITERACY P2

SEPTEMBER 2025

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MARKS: 150

TIME: 3 hours

This question paper consists of 13 pages and an addendum with 3 annexures.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.

2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

   - ANNEXURE A for Question 2.2
   - ANNEXURE B for Question 2.3
   - ANNEXURE C for Question 4.3

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 drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

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QUESTION 1

1.1 TABLE 1 below contains a list of explanations and definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

LETTER	DEFINITION
A	An instrument that is used to measure the weight of an object.
B	A number calculated from an adult's weight and height, expressed in units of kg/m^2.
C	The areas of all the faces/surfaces of an object added together.
D	The likelihood of an event to happen.
E	Graphs consisting of a series of percentile curves that show the distribution of the growth measurements of children.
F	Information about the profile of a route as seen from the side.
G	Show the design and dimensions of the inside of a building, from a top view.
H	A particular place or position.
I	A diagram that shows a real-life object drawn in proportion.
J	The amount of space available to hold something.
K	A major road that links major cities.

Use TABLE 1 above and match an explanation or a definition with EACH of the concepts below. Write only the letter (A–K) next to the question numbers (1.1.1 to 1.1.6), e.g. 1.1.7 L.

1.1.1 BMI (2)

1.1.2 Capacity (2)

1.1.3 Surface area (2)

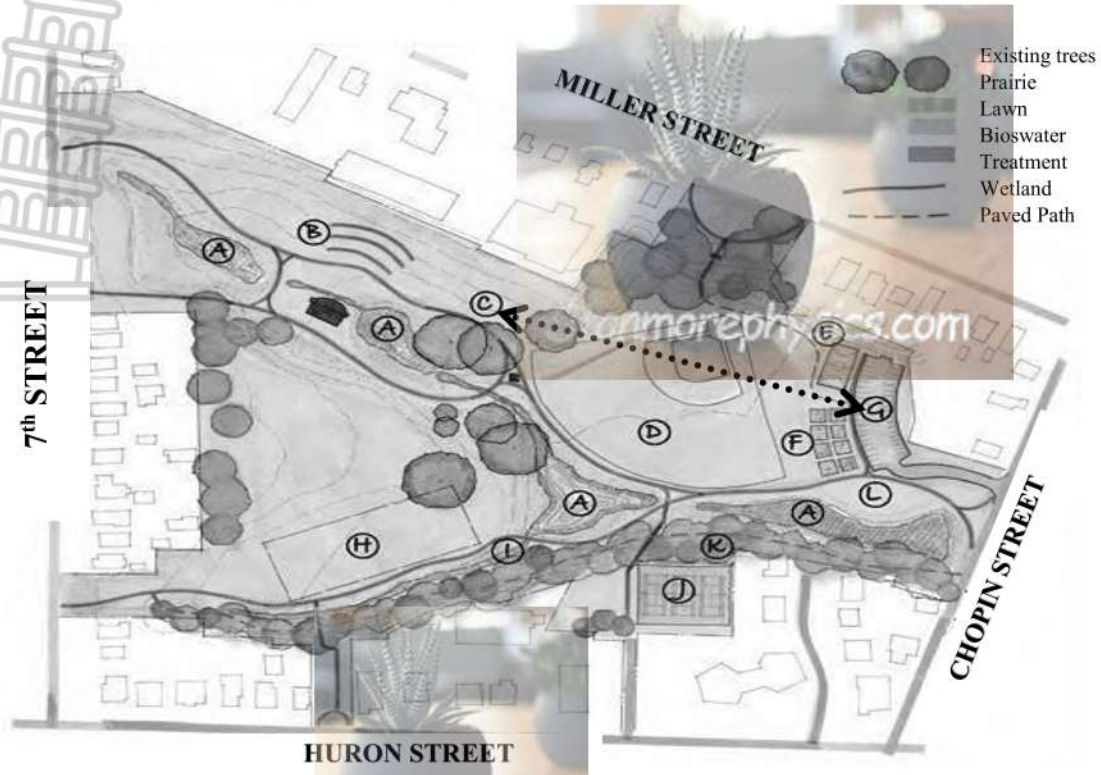
1.1.4 Scale drawing (2)

1.1.5 Floorplan (2)

1.1.6 Probability (2)

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1.2 **BELOW IS A LAYOUT PLAN OF THE WEST PARK RECREATION AREA**



Key:

A - Wet Meadow Stormwater Treatment Wetland
B - Amphitheater
C - Picnic Area
D - Existing Baseball Field
F - Community Garden
G - Proposed parking
H - Sports Field
I - Emergent Stormwater Treatment Wetland
J - Existing Tennis Court
K - Native American Trail
L - Playground

[Source: https://www.bing.com]

Use the information above to answer the questions that follow.

1.2.1 Name TWO sports activities that they can play in the park. (2)

1.2.2 Name any TWO streets that surround the park. (2)

1.2.3 Name the place labelled **G** on the layout plan. (2)

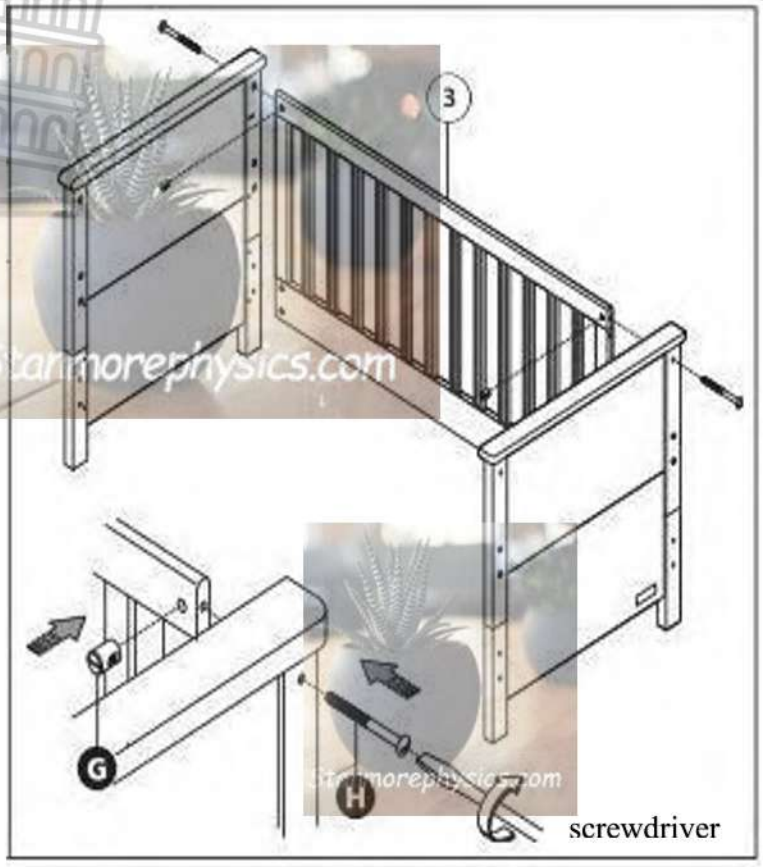
1.2.4 Identify the place where concerts, movies or dramas can be played. (2)

1.2.5 Measure, in mm, the length of the dotted line joining **C** and **G.** (2)

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1.3

Illustrated below are the steps and components needed to assemble a wooden baby cot.



FITTINGS
G/ large barrel nuts x 2
H/ assembly bolts x 2

STEP 10

Select one of the **cot** sides and position it between the cot ends with the detail on the side slats facing towards the outside of the cot. Insert two barrel nuts (G) into the holes in the underside of the top rail (3). Ensure the slot in the barrel nut heads face the connecting holes.

Fasten the side in position by inserting two assembly bolts (H) in the top holes of the cot ends. Tighten them into the large barrel nuts using a flat-headed screwdriver.

NOTE: You may need to rotate the large barrel nuts to align the hole with the bolt.

[Source: https://www.bing.com/images/search?view]

Use the information above to answer the questions that follow.

1.3.1 State whether the screwdriver turns clockwise or anti-clockwise. (2)

1.3.2 Calculate the number of fittings used in step 10. (2)

1.3.3 Name the part labelled **G**. (2)

1.3.4 Write down the name of the structure that is assembled. (2)

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QUESTION 2

2.1 John need to get a bucket loader to his farm. He is worried that it will not pass under a LOW CLEARANCE with a height of 4.4 m.

Below is the reduced picture illustrating the height of John and that of the Bucket loader. The actual height of John is 1,75 m



Below is the picture illustrating the height of the bridge.



[Source: ALSconstruction.co.za]

2.1.1 The scale used to reduce the picture is **1 : 125**. Explain the meaning off the scale. (2)

2.1.2 The actual height of the loader is 4,6 m. Determine in mm the height of the loader on the diagram. (3)

2.1.3 Will the bucket loader fit under the bridge? Justify your answer. (2)

2.2 ANNEXURE A shows the route map of the Medihelp Stellenbosch Cycle Tour.

Use ANNEXURE A to answer the questions that follows.

2.2.1 Write down the name of the first town that the cyclists will reach, once they have started the race. (2)

2.2.2 Name the mountain pass that is situated on the route. (2)

2.2.3 Give TWO general directions that a cyclist will take between water point 4 and the cut off at 12:30. (3)

2.2.4 Name any TWO regional roads that appear on the route used by the cyclist. (2)

2.2.5 A cyclist started the race at 9:35 and it took him 2 hours 50 minutes to complete the race. The coach claims that he will complete the race at 11:25.

Verify, showing ALL calculations, whether this claim is CORRECT. (3)

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2.3 ANNEXURE B shows a seat map of a train sleeper coach.

Use ANNEXURE B to answer the questions that follow.

2.3.1 Determine in simplified form the ratio of the MIDDLE berths to all the berths. (3)

2.3.2 Identify the row in which Jane would sit if she enters the train at one of the doors on the Southern side and is seated in seat number 43. (2)

2.3.3 The train has two connectors where other coaches of the same size can be connected. The conductor made the statement that if coaches are connected on both sides of this coach there would be more than 220 people seated on the train.

Verify whether his statement is TRUE. (3)

2.4 The information below was given for travelling from New Dehli to Mumbai in India.

TABLE 2: TRIP FROM NEW DEHLI TO MUMBAI

Departure	Time travelled	Arrival	Distance	Speed
04:00	A	23:35	1 336 km	B

[Source: www.trainman.india]

Use the information in the table above to answer the questions that follow.

2.4.1 Determine the value of:

a) **A** (2)

b) **B**

You may use the following formula:

$$\textbf{speed} = \frac{\textbf{Distance}}{\textbf{time}}$$

Round off your answer to the nearest kilometer per hour. (3)

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QUESTION 3

3.1 Mr John intends to pave his drive way using paving bricks as shown below.

PALLET OF BRICKS	PAVING BRICK
 Height = 1,82 m Length = 1,54 m Width = 0,67 m	 Height = 73 mm Length = 222 mm Width = 106 mm 

Use the information above to answer the questions that follow.

3.1.1 Calculate in m^3 the volume of the pallet of bricks. Rounded to TWO decimal places.

You may use the following formula:

Volume = length × width × height (3)

3.1.2 John stated that number of bricks on a pallet is 1 094.

Verify showing ALL calculations if his claim is VALID. (5)

3.1.3 Calculate the area (in m^2) of the largest face of ONE brick, rounded to THREE decimal places.

You may use the following formula:

Area = length × width (3)

3.1.4 The driveway that he wants to pave is 1,33 m wide and 20 m long.

Verify, by means of calculations, whether the bricks on ONE pallet will be enough. (5)

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3.2 Below is the picture of an **installed** kitchen unit with stove and fridge on the side.
The length of the stove is 0,7 m and that of the fridge is 0,8 m.
Area occupied by kitchen unit is 8,4 m^2 and it will not be tiled.



Use the diagram above to answer the questions that follow.

3.2.1 The length of **A** is 0,1 m more than the length of the fridge and the length of **B** is two times the length of the stove.

Determine:

a) the length of **A** (2)

b) the length of **B** (2)

3.2.2 Determine the length of the kitchen floor indicated by the line XY, if it is 0,2 m longer than the total length of the cupboards, stove and fridge. (2)

3.2.3 Lesego wants to replace the tiles in her kitchen with new ceramic tiles. The total area of the floor of the kitchen is 14,8 m^2.

a) Calculate the width of the kitchen if the length is 4 m.

You may use the following formula: **Area = length × width** (3)

b) Lesego claims that it will cost her R1 523,20 to tile the kitchen floor, if tiles cost R238/m^2.

Verify, showing ALL calculations, whether this statement is TRUE. (4)

c) Lesego buy an extra 10% of tiles. Give ONE possible reason why Lesego bought extra tiles. (2)

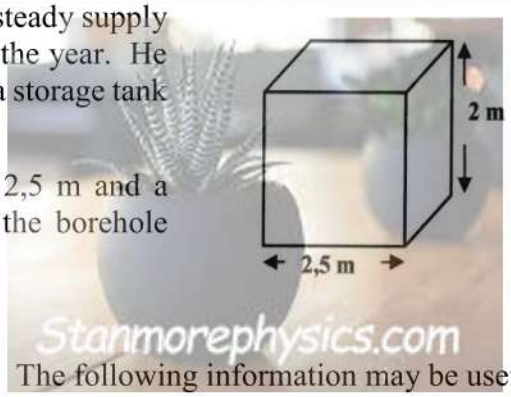
[31]

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QUESTION 4

4.1 Mr Bongani is a farmer. He needs a steady supply of water for his livestock throughout the year. He pumps water out of the borehole into a storage tank with a square base.

The tank has a base with a side of 2,5 m and a height of 2 m. The output rate of the borehole pump is 3,6 kiloliter per hour.





NOTE: The following information may be useful:

1 m^3 = 1 kℓ

Volume of a square-based prism = $(side)^2$ x height,

Use $\pi = 3{,}142$

Use the information above to answer the questions that follow.

4.1.1 Calculate the capacity (volume) in kiloliters of the storage tank. (3)

4.1.2 Determine the time, in hours and minutes, it will take the pump to fill the storage tank to 65% of its capacity if the pump operates at $\frac{2}{3}$ of its output rate. (7)

4.2 The table below shows the average daily water requirements per animal.

TABLE 3: AVERAGE DAILY WATER REQUIREMENTS PER ANIMAL

Type of livestock	Litres
Cattle	90
Sheep and goats	50
Chickens and ducks	5
Mr Bongani has 40 cattle, 20 sheep, 30 goats and 50 chickens.	

4.2.1 Mr Bongani claims that he will need 6,350 kℓ of water for all the livestock.

Verify, showing ALL calculations if the statement is CORRECT. (3)

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4.2.2 Mr Bongani wants to build a new cylindrical tank that is big enough to hold 10 days supply of water for his livestock.

Determine the radius of the new storage tank, rounded to TWO decimal places, if the height is 2 m.

You may use the following formula:

Volume = π x (radius)^2 x height, using $\pi = 3{,}142$ (6)

4.2.3 The optimal temperature for young chicks to grow in South Africa is 34 °C. Convert the temperature to the nearest °F.

You may use the following formula:

$$°\mathbf{C} = (°\mathbf{F} - \mathbf{32}) \times \frac{\mathbf{5}}{\mathbf{9}}$$ (4)

4.3 Mr Bongani rented a guest house in Cape Town. On ANNEXURE C is the floor plan of the guest house.

Use ANNEXURE C to answer the questions that follow.

4.3.1 Write down the number of windows that appears on the plan. (2)

4.3.2 One of the rooms in the guest house has a mistake. Identify the room and explain the mistake. (2)

4.3.3 What do the following symbols on the floor plan represent?

a) 

b) 

(2)

4.3.4 Which wall (North, South, West or East) has no windows? (2)

4.3.5 One of the door handles must be replaced.
Determine as a percentage the probability that it is not one of the interior doors. (3)

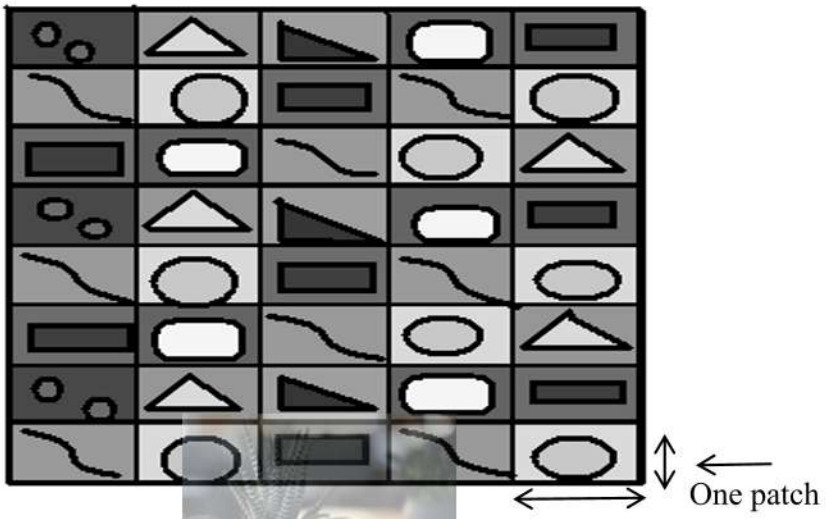
[34]

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QUESTION 5

5.1 Karen found a patchwork blanket that her great-grandmother had made.

PICTURE OF A FIFTH ($\frac{1}{5}$) OF THE TOTAL BLANKET



Note: 1 inch = 2,54 cm

One patch is 6 inches long and 4 inches wide.

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Refer to the picture of **one fifth** of the blanket shown above to answer the questions that follow.

5.1.1 List any THREE shapes that appear on the patchwork blanket. (3)

5.1.2 Determine the dimensions of **one fifth** of the patchwork blanket. (4)

5.1.3 Calculate the perimeter of the WHOLE patch blanket in cm.

You may use the following formula:

$$\textbf{Perimeter} = 2 \times \textbf{length} + 2 \times \textbf{width}$$ (4)

5.2 Karen wants to purchase oil in bulk for her trucking business. The diagrams below show the metal storage shelves with spill pallet and oil drums. Alongside it is the heavy-duty metal storage that she wants to purchase for the storage of oil metal drums.



Study the diagrams above to answer the questions that follow.

5.2.1 Write down the dimensions of the heavy-duty metal storage. (2)

5.2.2 Write down the diameter (in m) of the metal oil drum. (2)

5.2.3 Give an explanation why calculated answers are rounded down when dealing with packaging. (2)

5.2.4 Determine the number of metal oil drums that can fit onto the lower shelf of the heavy-duty metal storage. (3)

5.2.5 Hence, calculate the maximum number of the metal oil drums that can be packed onto the 3 (THREE) shelves of the heavy-duty metal storage. (3)

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TOTAL: 150

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ADDENDUM

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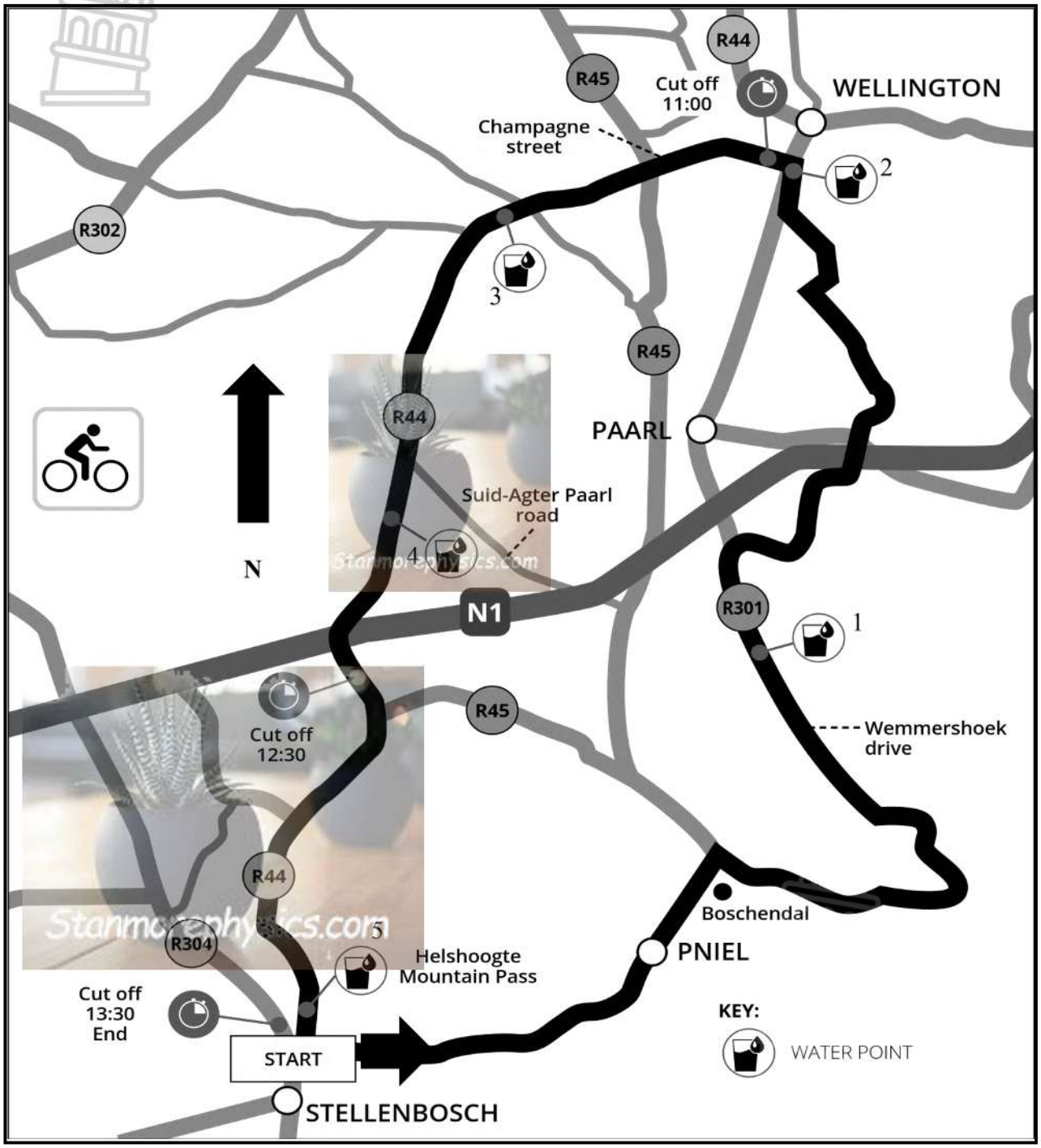
This addendum paper consists of 4 pages and 3 annexures.

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ANNEXURE A

QUESTION 2.2

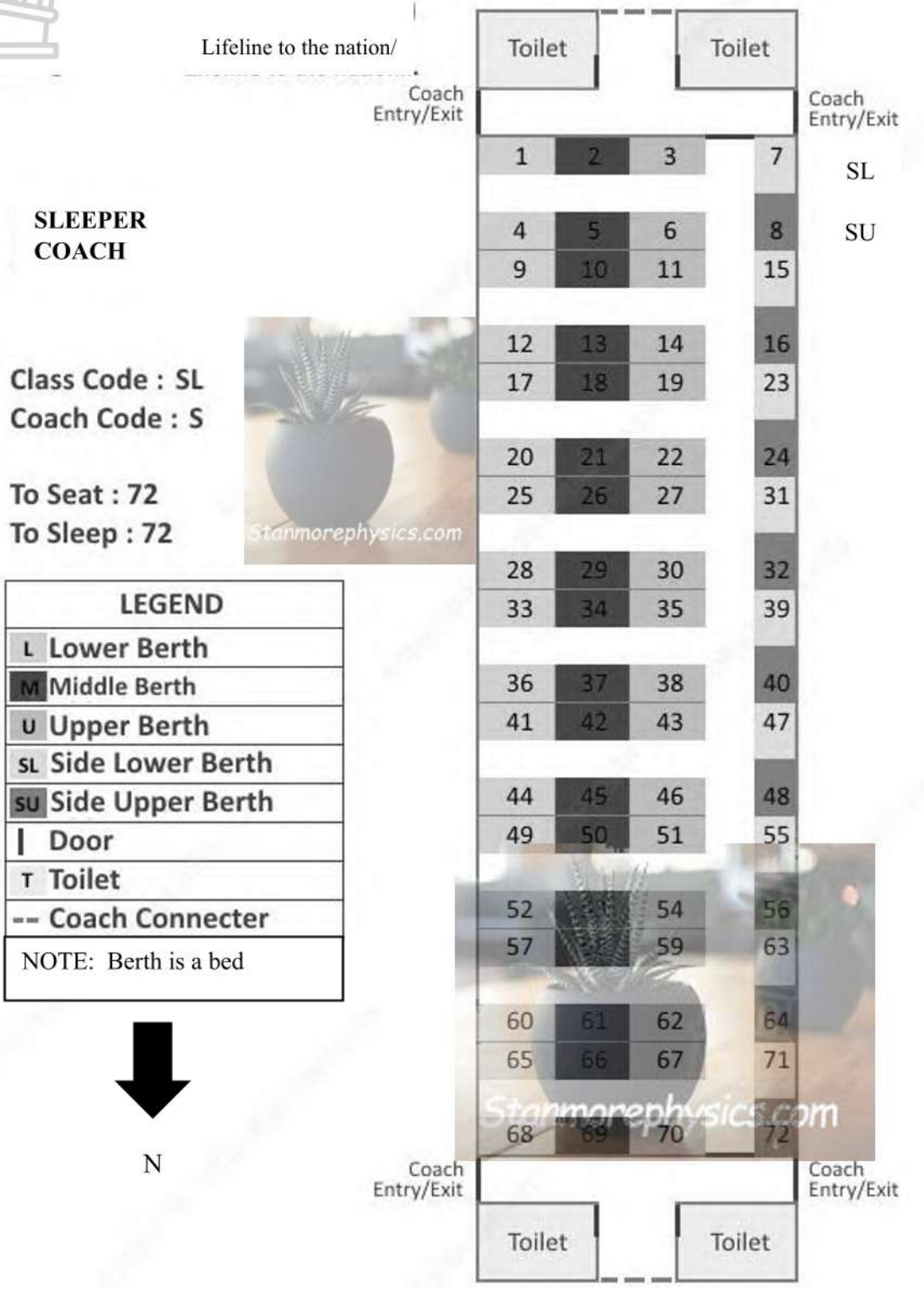
MEDIHELP STELLENBOSCH CYCLE TOUR ROUTE MAP - 97 KM



ANNEXURE B

QUESTION 2.3

LAYOUT OF A TRAIN SLEEPER COACH



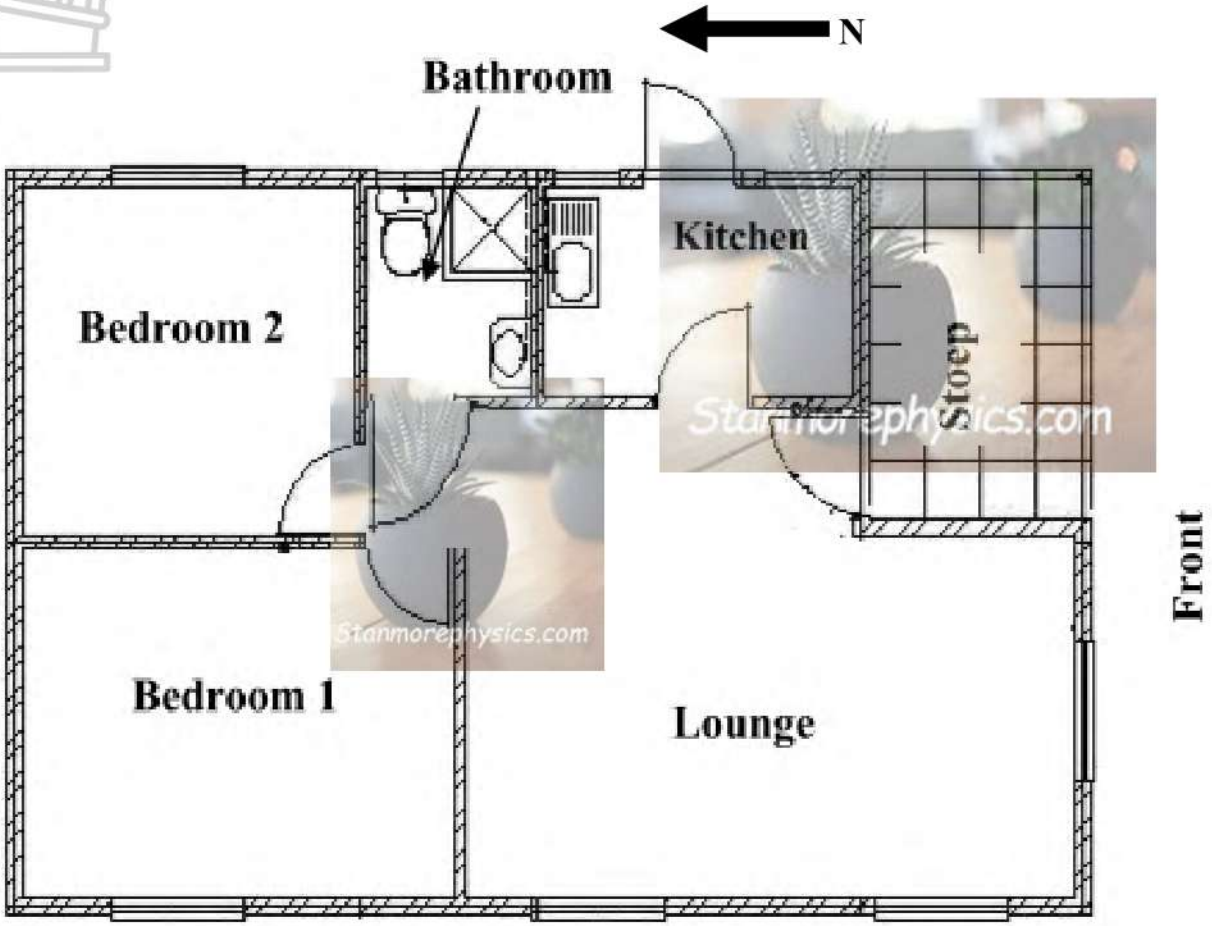
[Source: IndianRailways.info]

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ANNEXURE C

QUESTION 4.3

LAYOUT OF GUESTHOUSE



KEY	
	**Door**
	**Window**

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