education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 12

MATHEMATICAL LITERACY P2

JUNE 2024

MARKS: 100

TIME: 2 hours

This question paper consists of 10 pages and 3 annexures.

INSTRUCTIONS AND INFORMATION

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

2. Use ANNEXURES to answer the following questions:

   ANNEXURE A for QUESTION 2.1
   ANNEXURE B for QUESTION 2.2
   ANNEXURE C for QUESTION 4.1

3. Start EACH question on a NEW page.

4. Number the answers correctly according to the numbering system used in this question paper.

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. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

QUESTION 1

1.1 Explanations of some Mathematical Literacy concepts are listed in TABLE 1 below.

TABLE 1: EXPLANATIONS OF CONCEPTS

LETTERS	DEFINITIONS
A	Distance from the centre of the circle to the circumference of the circle.
B	The space occupied by a 2D object.
C	The results of a trial or experiment.
D	Maximum distance between two points on the circumference of the circle.
E	The space occupied by a 3D object.
F	The chance of an event to happen.

Use TABLE 1 above to select the explanation for EACH of the following concepts.

NOTE: Write down only the letter (A–P) next to the correct concept.

1.1.1 Outcome (2)

1.1.2 Radius (2)

1.1.3 Volume (2)

1.2 Below are some of the ingredients used in the malva pudding recipe.

Ingredients	Picture of malva pudding
$1\frac{1}{2}$ cup of brown sugar 90 ml of apricot jam 375 g of flour 75 g of baking powder	

[From https://www.eatout.co.za]

NOTE: 1 tablespoon = 15 ml
1 cup = 250 g

Use the information above to answer the questions that follow.

1.2.1 Determine the number of tablespoons of apricot jam needed for the recipe. (2)

1.2.2 Write down the unit ratio of baking powder to flour. (3)

1.2.3 Express the amount of brown sugar in kg. (3)

1.3 The map below shows a part of Gauteng Province.

A MAP THAT SHOWS A PART OF GAUTENG PROVINCE

[Adapted from https://www.google.com/maps, 2024]

Use the information above to answer the questions that follow.

1.3.1 Name the TYPE of map used above. (2)

13.2 Explain the meaning of the scale given in the map. (2)

1.3.3 Name TWO hospitals that appear on the map. (2)
[20]

QUESTION 2

2.1 Madala lives in Port Elizabeth and likes being a supportive marathon spectator in the Comrades Marathon. He and his friend, Bongani, usually arrive in Durban two days before the marathon day.

ANNEXURE A shows the map that Madala used to drive from Port Elizabeth to Durban.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Name the TYPE of map given on ANNEXURE A. (2)

2.1.2 Write down the total distance from Port Elizabeth to Durban (2)

2.1.3 Calculate the time (in hours) that Madala takes to drive at an average speed of 120 km/h from Port Elizabeth to Durban. (3)

You may use the formula:

$$\textbf{Speed} = \frac{\boldsymbol{distance}}{\boldsymbol{time}}$$

2.1.4 Calculate the distance from Port Elizabeth to East London via Port Alfred. (4)

2.1.5 Give ONE possible reason why Madala and Bongani arrive in Durban two days before the marathon day. (2)

2.2 The Comrades Marathon is a race that takes place annually in KwaZulu Natal between Durban and Pietermaritzburg.

The map showing the route to be followed during the Comrades Marathon is given on ANNEXURE B.

Use ANNEXURE B to answer the questions that follow.

2.2.1 Write down the national roads that appear on the map (2)

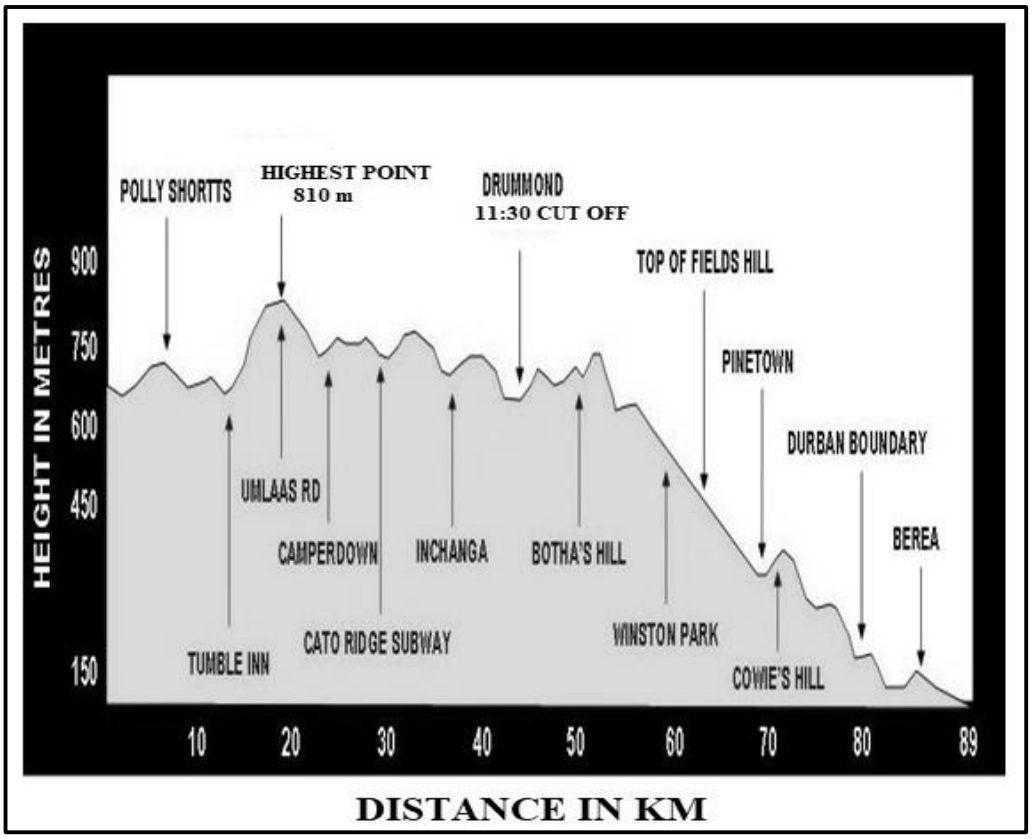
2.2.2 Name the scale used in the map. (2)

2.2.3 In which general direction is Pietermaritzburg from Durban. (2)

2.2.4 Determine the scale of the map in the form 1: … (3)

2.3 Below is the elevation map showing the distance covered by runners in the 2022 Comrades Marathon.

ELEVATION MAP



[Adapted from www.pinterest.co.za]

Use the information above to answer the questions that follow.

2.3.1 Write down the height of the highest point of the elevation map. (2)

2.3.2 The cut off time during the 2022 Comrades Marathon was 11:30. (2)

Estimate the distance the runner would have covered at that point.

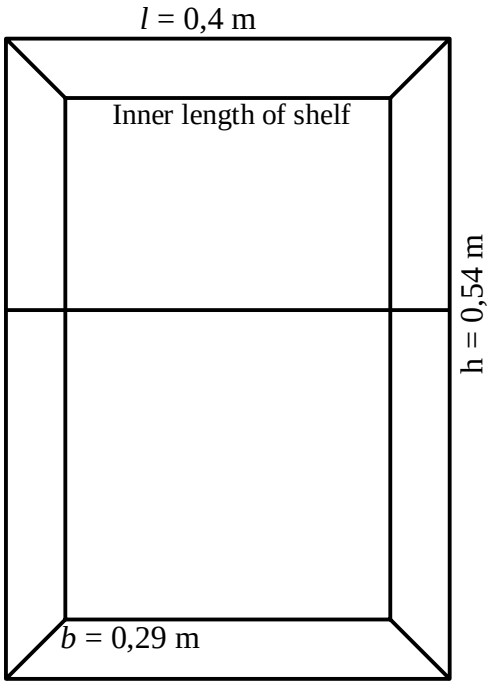
2.3.3 Give ONE possible reason why some participants do not complete the race. (2)

[28]

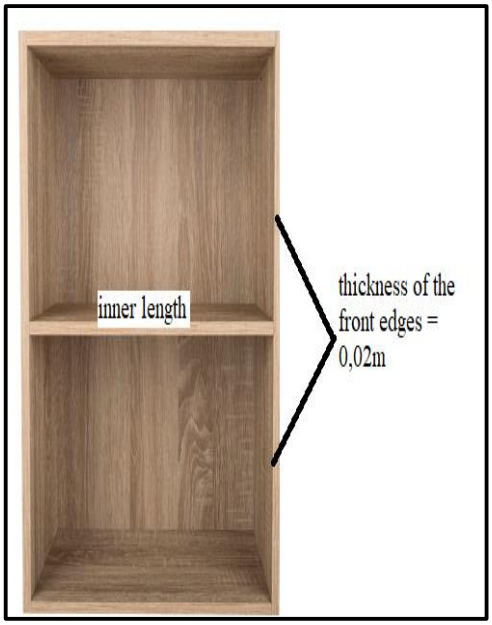
QUESTION 3

3.1 Carlos is a self employed carpenter. He makes open cupboards with two equal shelves as illustrated below.

DIGRAM OF AN OPEN CUPBOARD



PICTURE OF AN OPEN CUPBOARD



[Adapted from https://www.takelot.com,2024]

NOTE:
The outer dimensions of the shelf are given as *l* = length, b = breadth and h = height.
The thickness of the board used to make the shelf is 0,02 m.
Perimeter of rectangle = 2 (*l* + b)

Use the information above to answer the questions that follow.

3.1.1 Explain the concept *perimeter.* (2)

3.1.2 Calculate the total surface area (in m^2) of the board used to make the outer frame of the open cupboard.

You may use the formula:

Surface area = 2(*l* × b) + 2(b × h) + *l* × h (5)

3.1.3 Carlos must put vanish on the outer surface area of the open cupboard for glossy texture. The spread rate of the vanish paint he uses is 0,8 litres per m^2.
Carlos estimated that he will need more than 1 litre of vanish paint to make two coats.

Verify, showing ALL calculations, whether Carlos's estimation is CORRECT. (5)

3.1.4 Carlos must cover the front edges of the shelves with the wood edging strips. He claims that the total length (in m) of the wood edging strip needed is less than 2 metres.

Verify, with calculations, whether his claim is VALID.

You may use the formula:

Total length = perimeter of front edges + the inner length of one shelf (5)

3.2

Carlos has a mass of 149 pounds and the height of 1,52 m.

Hint: 1 pound = 0,454 kg.

TABLE 2 below shows the weight status of an adult according to their BMI.

TABLE 2: WEIGHT STATUS OF AN ADULT

BMI (kg/m^2)	**WEIGHT STATUS**
<18, 5	Underweight
18,5 – 24,5	Normal or healthy
25 – 30	Overweight
>30	Obese

Use the information above to answer the questions that follow.

3.2.1 Calculate the mass (to the nearest kg) of Carlos. (3)

3.2.2 Calculate Carlos's BMI (in kg/m^2).

You may use the formula: $\textbf{BMI} = \frac{\textbf{mass in kg}}{(\textbf{height in m})^2}$ (2)

3.2.3 Determine Carlos's weight status. (2)

3.3

Carlos's daughter, Kele, weighing 60 kg is very cautious about her health. She takes a multivitamin syrup that comes with the concentration of 400 mg/5ml. The recommended dose for of an adult per day is 40 mg/kg. This multivitamin syrup must be stored at room temperature of 70℃

Use the information above to answer the questions that follow.

3.3.1 Show that the dose (in mg) that Kele must take per day is 2 400 mg. (2)

3.3.2 Calculate the volume (in ml) of the dose that Kele must take per day. (2)

3.3.3 Convert the temperature to the nearest 10 ℃

You may use the formula: $°F = (℃ \times \mathbf{1,8}) + \mathbf{32}°$ (4)

[32]

QUESTION 4

Maria likes going out to watch shows at the theatre for entertainment. ANNEXURE D shows the seating of a theatre.

Use ANNEXURE D provided to answer the questions that follow.

4.1 Explain the meaning of the key below that appears on the seating plan.

(2)

4.2 Give ONE possible reason why people go to a theatre. (2)

4.3 Only 5 seats in row C have the width of 19´´.

Determine the probability (correct to ONE decimal) of a person seating on the 19´´ width seat in row C. (3)

4.4 Maria occupied seat L6 on her arrival in the theatre. She later decided to move to seat G17 that is nearer to the stage.

Describe the route that Maria will follow to reach seat G17. (4)

4.5 The show that Maria came to watch on that day started at 15:15 and took 85 minutes.

Determine the time at which the show ended. (3)

4.6 From P6 to P20, there are TWO 20´´ width seats, ONE 22´´ width seat and the rest are 21´´ width seats.

Calculate the total length (to the nearest m) occupied by seats P6 to P20 in the theatre.

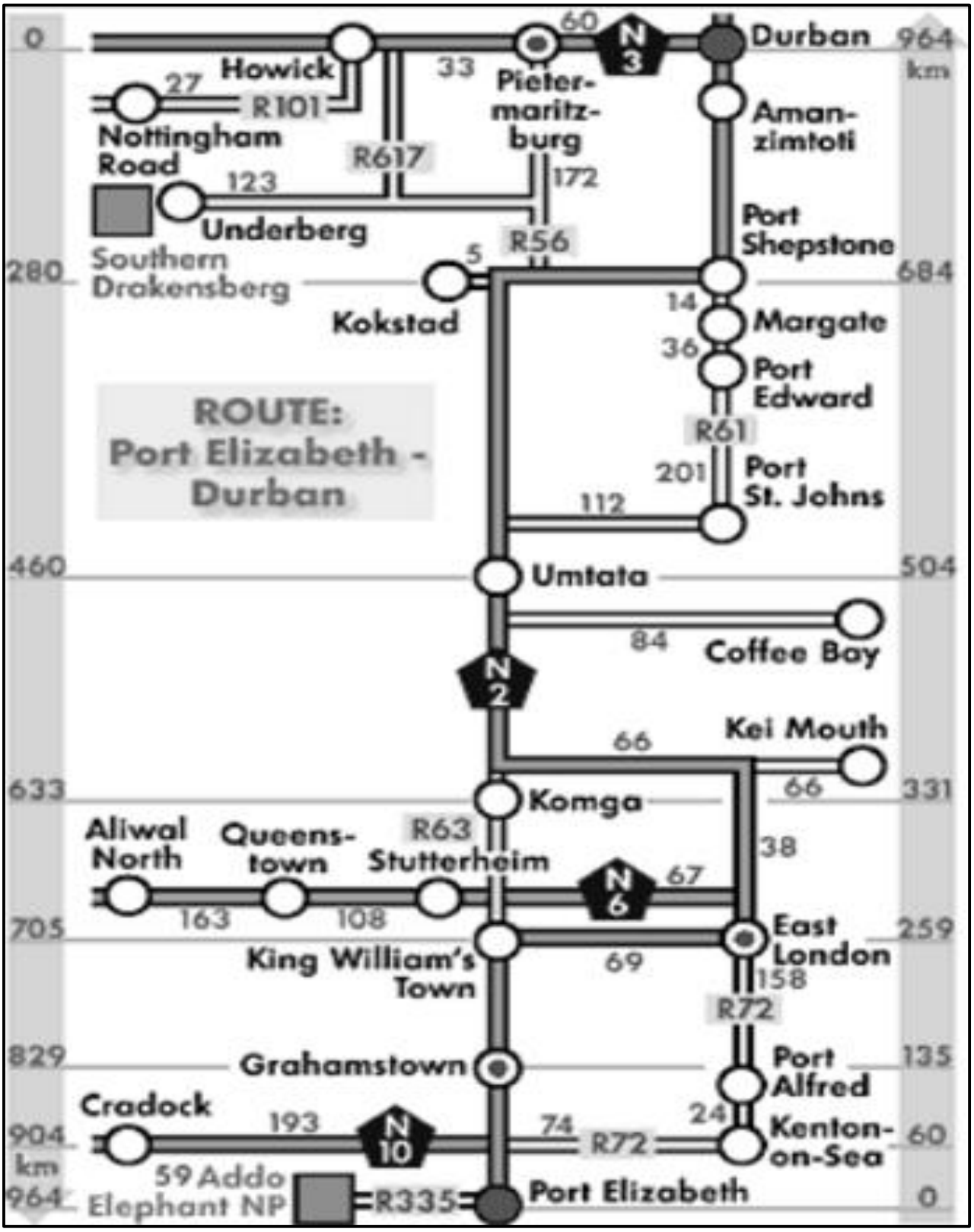
NOTE: 1 cm = 0,394 inches (6)
[20]

TOTAL: 100

ANNEXURE A

QUESTION 2.1

MAP SHOWING THE ROUTE FROM PORT ELIZABETH TO DURBAN

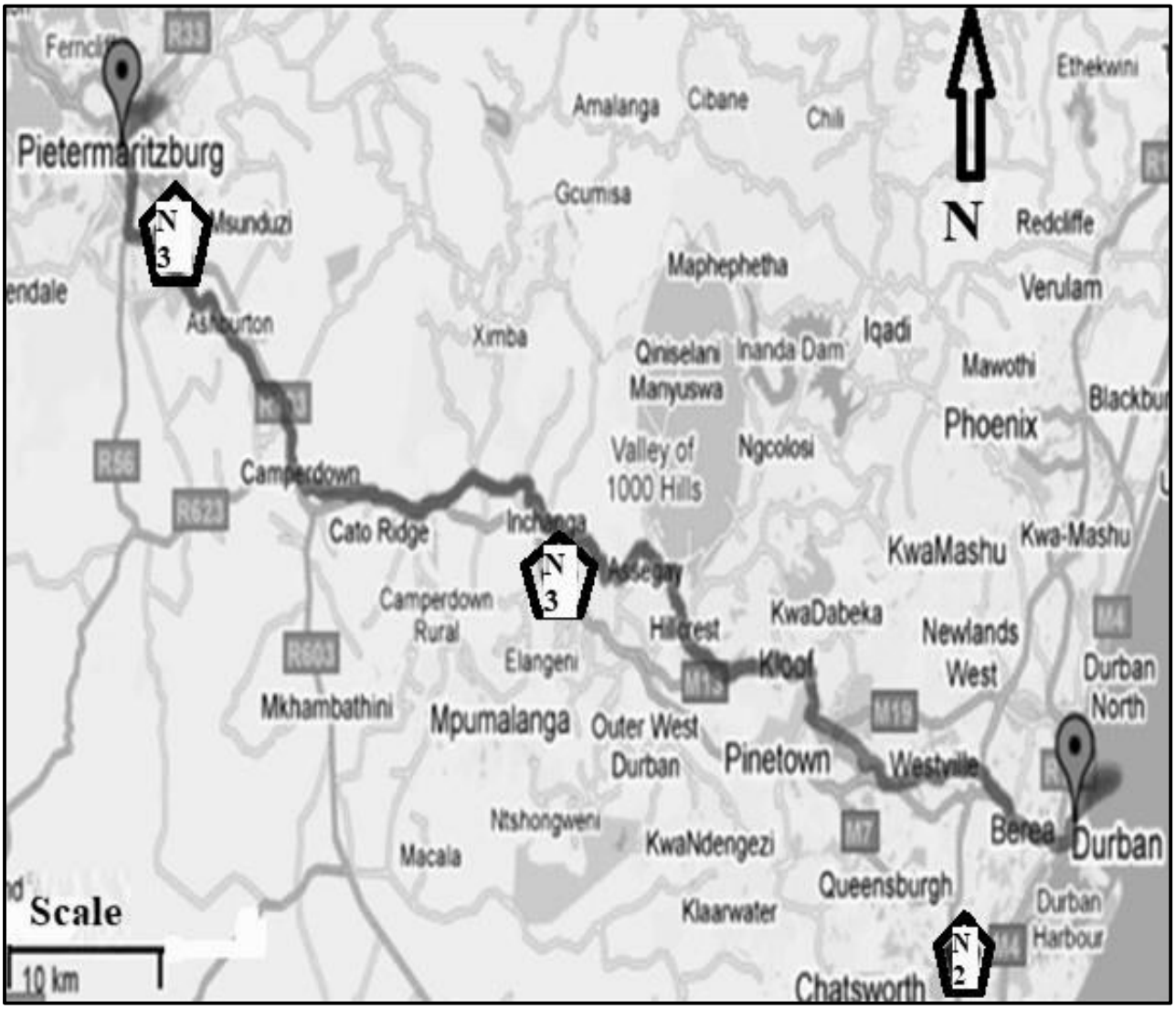


[Adapted from www.pinterest.co.za]

ANNEXURE B

QUESTION 2.2

THE MAP SHOWING THE ROUTE FROM DURBAN TO PIETERMARITZBURG

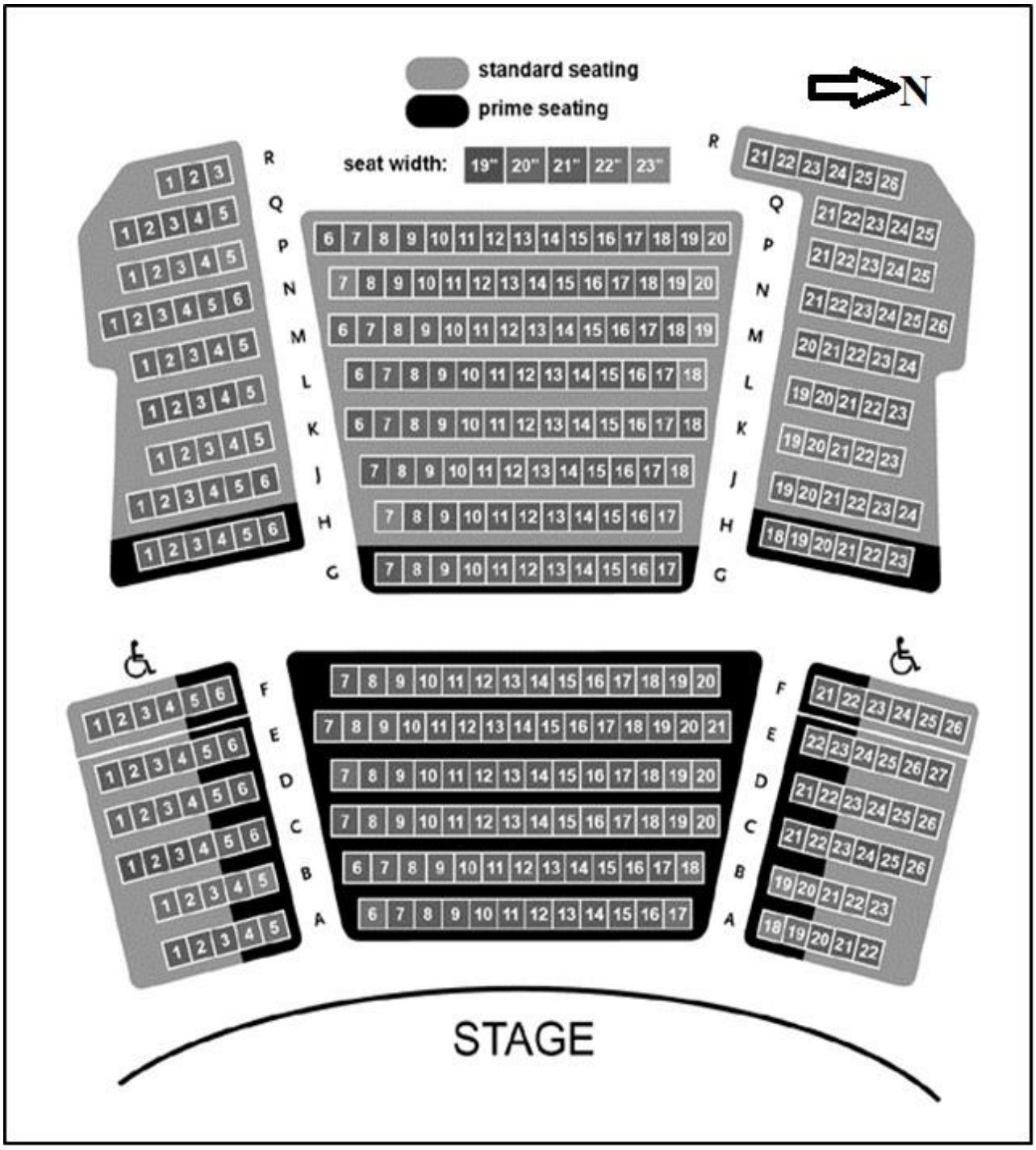


[Adapted from www.pinterest.co.za]

ANNEXURE C

QUESTION 4.1

THE SEATING PLAN OF THEATTRE



[Adapted from www.pinterest.co.za]