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EXAMINATION	NATIONAL SENIOR CERTIFICATE
GRADE	12
DATE	NOVEMBER 2024
SUBJECT	MATHEMATICAL LITERACY
PAPER	2
MARK TOTAL	150
DURATION (HOURS)	3
NUMBER OF PAGES	19

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of **FIVE** questions.
2. Answer **ALL** the questions.
3. Number the answers according to the numbering system used in the question paper.
4. Use the ANNEXURES as follow:
   ANNEXURE A to answer **Question 3.1.**
5. Start each question on a new page.
6. An approved non-programmable and non-graphical calculator may be used.
7. Show **ALL** calculations clearly.
8. Round **ALL** final answers off according to the context, unless stated otherwise.
9. Indicate **ALL** units where applicable. Units **MUST** be shown in final answers.
10. Maps and diagrams are **NOT** necessarily drawn to scale, unless stated otherwise.
11. Write neatly and legibly in **BLUE** ink **ONLY**.

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QUESTION 1

1.1 The 2023 Rugby World Cup was the tenth Men's Rugby World Cup. It took place in France from 8 September to 28 October.

- The matches took place in nine stadiums across France and the final match took place at the *Stade de France*, north of Paris.
- Twenty teams participated in the World Cup, 48 matches were played, and it was estimated that approximately 2 437 208 people attended the matches which is about 50 775 people per match.
- The champions were South Africa; the runner up was New Zealand and England took the third place.
- The 11th Rugby world cup will be held in 2027 and is scheduled to take place in Australia.

[Source adapted from: https://en.wikipedia.org/wiki/2023_Rugby_World_Cup]

Use the information given above to answer the questions that follow.

1.1.1 State whether the following statements about the 2023 Rugby World Cup are TRUE or FALSE:

a. The 10th Men's Rugby World Cup took place in France. (2)

b. The duration of the World Cup was 51 days in total. (2)

c. Approximately two billion four hundred and thirty-seven million two hundred and eight thousand people attended the matches. (2)

d. The next World Cup will be in 3 years, and it will take place in Australia. (2)

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1.1.2 A very popular French soda drink is *Perrier*. There are 3 flavours available. Lemon, watermelon, and green apple.

Eric is a South African that attended the Rugby World Cup in France. He always wanted to taste *Perrier*. He saw the following advertisement:

SPARKLING WATER
Lemon Flavoured Perrier

Description	Cost
1 Pack (6×330ml bottles)	€5.70 per pack

NOTE:
€ = Euro

[Source: https://my-french-grocery.com/product/sparkling-water-lemon-flavor-perrier-2/]

a. Eric bought 24 bottles of lemon flavoured water. How many packs of water did he buy? (2)

b. If €1 = R20,39, how much will he pay in rand value for one pack? (2)

c. If Eric picks out a bottle at random from the 24 bottles, what will the probability be that he will pick a watermelon flavoured bottle.

Write your answer as a percentage. (2)

d. Which currency is the stronger between the two listed below? Write only the correct letter.

A. Rand
B. Euro (2)

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1.1.3 The French railway operator SNCF was an official sponsor of the Rugby World Cup. There was a station in each city as shown in the map below.

[Source: https://www.comparabus.com/en/train/railway-companies/sncf]

The map below shows the stations in the French cities where the matches took place during the Rugby World Cup.

[Source: https://www.garesetconnexions.sncf/en/rugby-world-cup-2023-0]

Use the above map to answer the questions that follow.

a. Which French city lies directly south of Paris? (2)

b. Write down the number of stations that can be seen on the map? (2)

c. Eric stayed in Paris and bought a ticket to watch the match against New Zealand and Namibia. This match was played in Toulouse. The trip took 4 hours. If the match started at 21:00, determine the latest Eric had to depart from Paris to be on time for the match? (2)

d. Eric hired a taxi to take him to the train station in Paris. The station was 20 km away from the hotel that he stayed in. Convert 20 km to m. (2)

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1.1.4 Eric planned to visit the Eiffel Tower. The entrance to his Airbnb was in Paul Doumer Avenue. Eric hired a taxi to take him to the Eiffel Tower.

[Source: https://www.ilovemaps.co.uk/products/paris-street-map-central-paris?variant=12371486933094]

Complete the following directions from Eric's Airbnb (●) to the Eiffel Tower (★) by selecting the correct word(s) from the options given in bold text.

The taxi will turn (1.1.4 a.) **left/right** in Rue De La Tour. At the roundabout the taxi will take the (1.1.4 b.) **third/fourth** exit and drive in a (1.1.4 c.) **south-westerly/north-easterly** direction until it reaches the Pont D'lena bridge where it will turn right to cross the Seine River. The taxi will then turn right in Quai Branly highway until it reaches (1.1.4 d) **De Suffren Avenue / Gustave Eiffel Avenue** where the taxi will then turn left. It will keep on driving until Gustave Eiffel Avenue where its destination will be on the left. (4)

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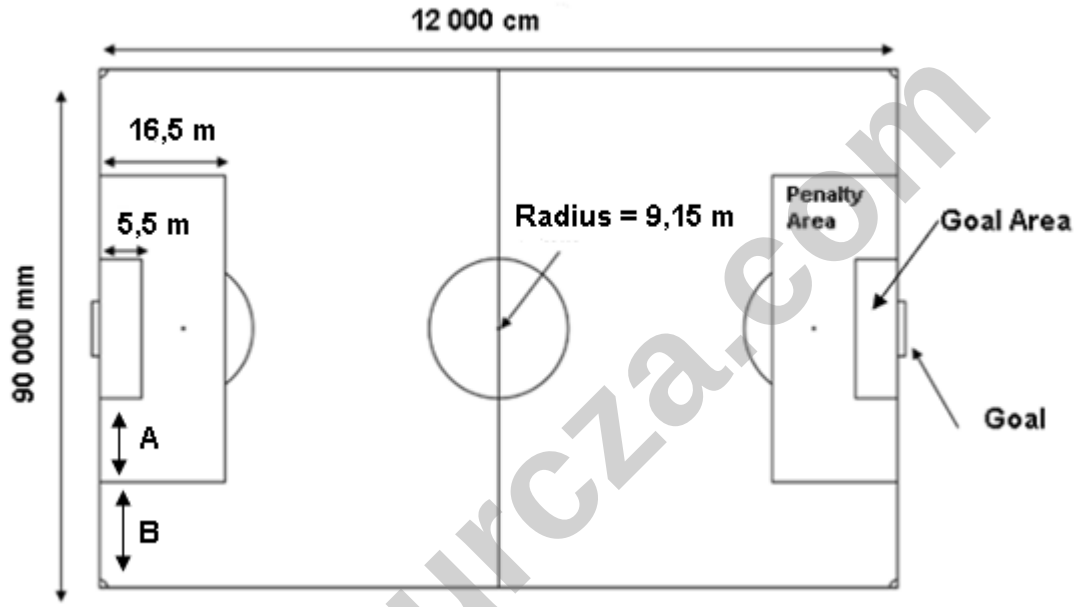
QUESTION 2

2.1 Thabo plays for a soccer team that is based in Johannesburg.

A soccer field usually has a rectangular shape and is marked with lines called the boundary lines. Soccer fields are made of grass but can also be made of artificial turf.

The following diagram illustrates the dimensions of a soccer field:



[Source: https://www.hartsport.co.nz/info-tips/soccer]

NOTE:

- A = 5,5 m
- B = 11 m

Study the diagram and answer the questions that follow:

2.1.1 Calculate (in m^2) the area of the field.

Area of rectangle = Length × Width (4)

2.1.2 To be able to play soccer competitively, a player must be fit. As part of their fitness training Thabo and his teammates run 2 km every Tuesday to stay fit. Thabo stated that if they run 5 times around the soccer field it will be equal to the 2 km that they run on the road. Verify, showing all calculations, whether Thabo's statement is CORRECT.

Perimeter of rectangle = (2 × Length) + (2 × Width) (7)

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2.1.3 One of the priorities for the managers of Thabo's team is to replant the grass on the field of play. They decided to use the company, *Lawn for Africa,* to do the replanting. The grass that they are going to use is Kikuyu because of its ability to withstand heavy foot traffic and recover quickly from damage. Management estimated that 11 000 m^2 will need to be replanted.

Below are the prices quoted by *Lawn for Africa:*

Kikuyu

Lawn and delivery in Pretoria – R28,00/ square meter

Lawn and delivery Johannesburg – R33,00/ square meter

PREPARATION includes rolling of the lawn and fertilising the soil.

- FERTILISER: R3,00/ square meter
- ROLLING OF THE TERRAIN: R15,00/ square meter

Kikuyu planted with no preparation needed:

- Pretoria R36,00/ square meter
- Johannesburg R41,00/ square meter

Kikuyu planted with preparation needed:

(preparation include fertilising and preparation of the terrain)

- Pretoria R38,00/ square meter
- Johannesburg R41,00/ square meter

[Source: http://www.lawnforafrica.co.za/index.php/ct-menu-item-8]

Management claimed that if they ask the company to deliver and plant the grass with no preparation, they will save more than R300 000, as opposed to when the company delivers and plants the grass with preparation.

Verify, with calculations, whether the claim is CORRECT. (10)

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2.2 One of the sponsors of the team, *Aquellé water*, sponsors 500 ml bottles of water for refreshment during practices and matches.

Below are the dimensions of a bottle of *Aquellé water*.

The six pack water bottles are packed in boxes with the following measurements:

The diagram below shows how the packs will be placed in a box:

[Source: https://www.dimensions.com/element/water-bottle-single-use]

Calculate the maximum number of six pack water bottles that will fit into one box. Show all calculations. (8)

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QUESTION 3

3.1 John decided to go on a trip to the Western Cape. He is planning to drive along the Garden route. Stretching from Storms River in the Eastern Cape to Mossel Bay in the Western Cape and is one of the most beautiful stretches of coastline in the world.

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

3.1.1 Select the correct type of scale that is represented on the map.

Bar scale	Number scale

(2)

3.1.2 Write down the number of national routes that are found on the map. (2)

3.1.3 Give the general compass direction from Uniondale to Mossel Bay. (2)

3.1.4 John will be staying in George. The first tourist attraction that he wants to visit is the Cango Caves. Identify two towns that John will pass on his way to the Cango Caves. (2)

3.1.5 Calculate the scale of the map in the form 1: ____ rounded to the **nearest hundred thousand**. (4)

3.1.6 The measured distance on the map between Barrydale and George is 6,5 cm, as the crow flies. Use your answer in 3.1.5 to work out the actual distance between Barrydale and George. (4)

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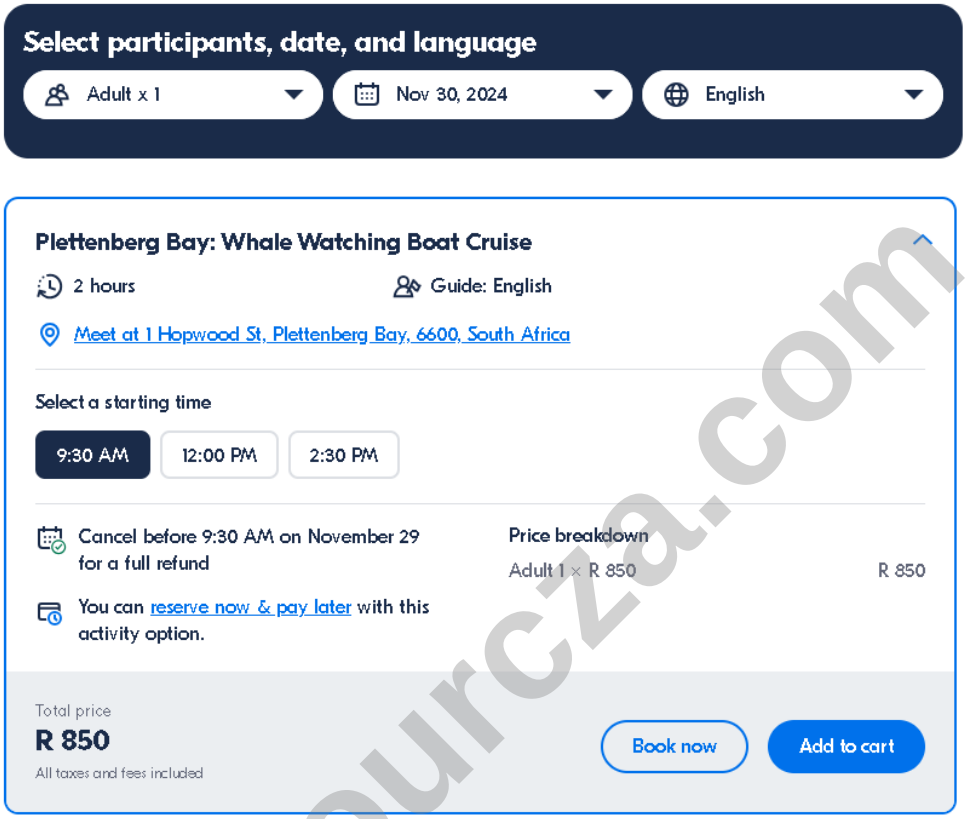
3.2 One activity on John's bucket list is whale watching in Plettenberg Bay. According to the locals the best time to watch the Humpback whales is from August to December.

John found the following information on the internet.



[Source: https://www.getyourguide.com/plettenberg-bay-l109147/plettenberg-bay-whale-watching-boat-cruise-t298820?ranking_uuid=8364ddb5-fb53-42bd-a724-ae5b65dc770c&lang=en&date_from=2024-11-30&_pc=1,1]

Use the information above to answer the questions that follow:

3.2.1 The distance between George and Plettenberg Bay is 93 km. If John drives at an average speed of 60 km/h, how long will it take John to drive to Plettenberg Bay? Write your answer in hours and minutes.

Time = Distance ÷ Speed (4)

3.2.2 John decided to book the 9:30 AM slot. What will be the latest that he can start driving from George to be on time for the trip? (2)

3.2.3 How much will John pay for the ticket if tax is not included? Round your answer off to the nearest R10.

NOTE: Tax in this context is VAT. (3)

3.2.4 The total price of R850 includes all taxes and fees. Except for the boat cruise identify TWO other possible items that could fall under fees. (4)

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3.3 After the cruise the crew members did a survey of the visitors' overall cruise experience. Their findings are given below.

Age	Will do cruise again	Will not do cruise again	Total
25 or older	135	**(i)**	180
Under 25	21	39	**(ii)**
Total	**(iii)**	84	240

3.3.1 Calculate the missing values, (i) – (iii) in the table. Only write the question number and answer. (3)

3.3.2 A visitor's response is chosen at random. Calculate (in percentage) the probability that this person is 25 or older and will do the cruise again. (3)

3.3.3 Give TWO possible reasons why a person will not go on the cruise again. (4)

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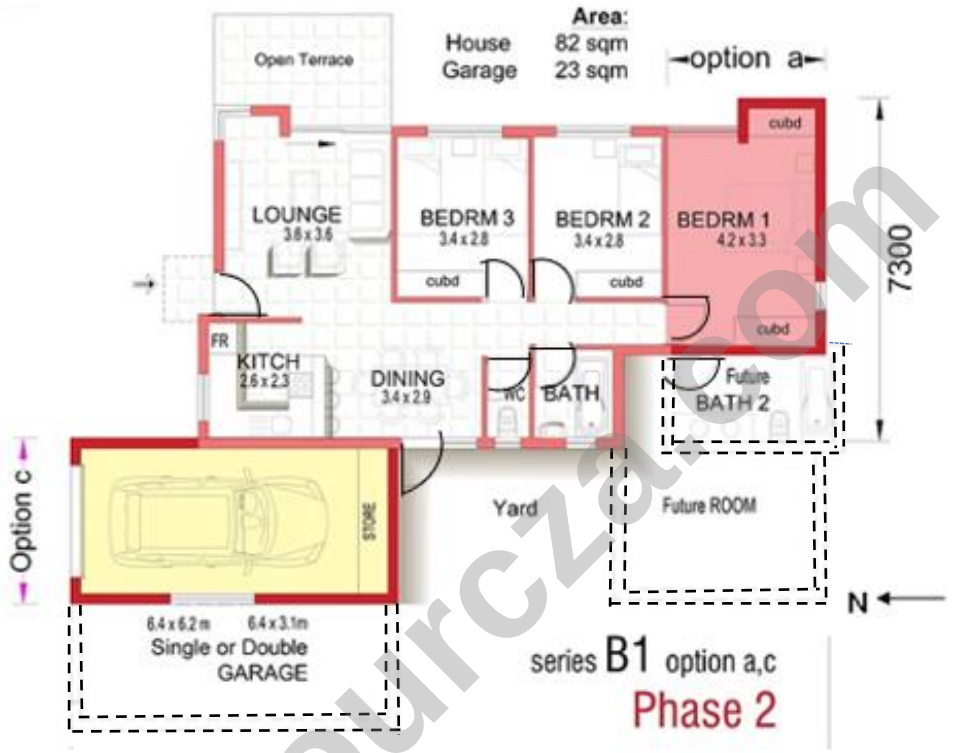
QUESTION 4

4.1 John plans to stay at Purple Rose guesthouse. Below is the drawn to scale floorplan of the guesthouse. Study the plan and answer the questions that follow. The double dotted line indicated, shows future building plans the owner wants to add.



Elevation A

[Source: https://www.flexihomeplan.com/product-page/flexi-home-plan-series-b]

4.1.1 Write down the number of bedrooms in the guest house. (2)

4.1.2 Determine the number of external doors of the guesthouse. (2)

4.1.3 Elevation A, as seen in the picture above, is the **west / east** facing elevation of the guesthouse. (2)

4.1.4 Which room will be more suitable to have a door to the terrace and why? (2)

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4.1.5 Determine the number of doors on the floor plan that open to the right. (2)

4.1.6 State ONE reason why people would prefer to have an en-suite bathroom? (2)

4.2 Mrs. Nel is the owner of the guesthouse. She provides breakfast for the guests. One morning she decided to serve muffins for breakfast.
Below is the recipe for the muffins she baked:

Best Ever Muffins

Ingredients:

- 2 cups all-purpose flour
- 3 teaspoons baking powder
- ½ teaspoon salt
- ¼ cup white sugar
- 1 egg
- 1 cup milk
- ¼ cup vegetable oil

Prep Time: 10 mins
Cook Time: 25 mins
Total Time: 35 mins
Servings: 12 **Yield:** 1 dozen

[Source: https://www.allrecipes.com/recipe/6874/best-ever-muffins/]

Conversions between equivalent quantities		
1 cup	1 tablespoon(tbs)	1 teaspoon (tsp)
250 ml	15 ml	5 ml

4.2.1 The muffins must be baked at 400 °F. Convert the oven temperature to °C using the formula given below. Round your answer off to the **nearest 10°**.

$$°F = \left(\frac{9}{5} \times °C\right) + 32$$ (5)

4.2.2 Mrs. Nel baked 60 muffins. Determine the number of dozens of muffins she baked? (2)

4.2.3 Determine (in tablespoons) the amount of milk needed to bake the muffins. (3)

4.2.4 Mrs. Nel put the muffin mix in the oven to bake at 07:50. At what time should she take the muffins out of the oven?

(2)

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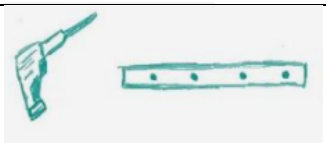
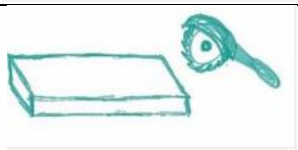
4.3 Mrs. Nel wanted to put up a floating shelf in her dining room. She asked a neighbour to help her with it. Look at the instructions provided and match the description with the picture to help the neighbour assemble the shelf.

Description	Picture
1. Plan the dimensions of the shelf	**A**
2. Install the brackets which will keep the shelf in place	**B**
3. Cut the wood for the shelf	**C** 
4. Drill the bracket holes	**D** 
5. Sand and stain the board	**E**
6. Slide the board over the brackets	**F**

[Source: https://za.pinterest.com/pin/16114511156532697/]

(6)

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QUESTION 5

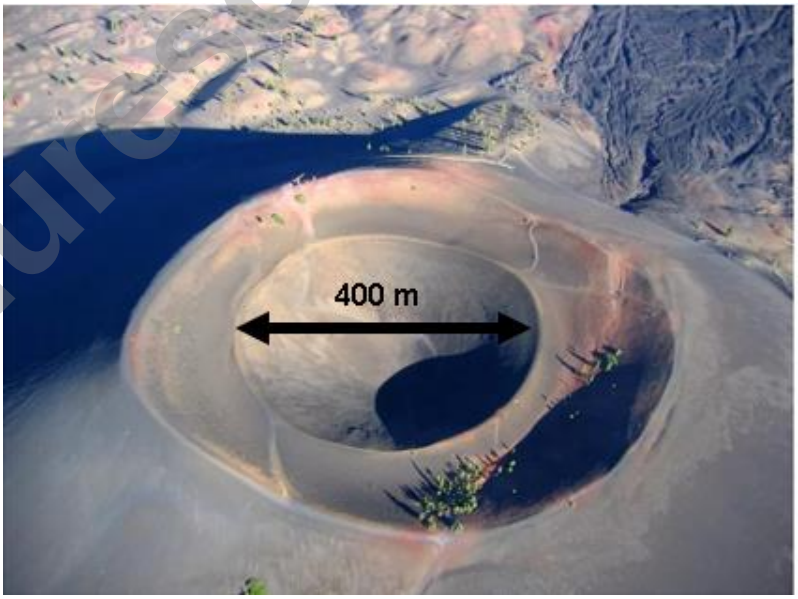
5.1 Below is a picture of volcanic ash blown 10 000 feet into the air as the Mount Marapi volcano erupted on 3 December 2023. Mount Merapi's crater is 400 m wide and 250 m deep.

2023 eruption of Mount Marapi

Ash from the eruption

Volcano	Mount Marapi
Date	3 December 2023 14:54 Western Indonesian Time (07:54 UTC)[1]
Location	West Sumatra, Indonesia 0.3800°S 100.4742°E
Impact	24 dead,[2] 12 injured[3]

Mount Marapi's crater



NOTE:
A crater is a funnel shaped depression that usually lies directly above the vent of a volcano.

[Source: https://en.wikipedia.org/wiki/2023_eruption_of_Mount_Marapi#Background]

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5.1.1 If 1 foot (ft) = 0,3048 m, calculate, in meters, the height that the ash was blown into the air. (2)

5.1.2 Write the time-of-day, Western Indonesian Time, Mount Marapi erupted in a 12-hour format. (2)

5.1.3 Mount Marapi's crater is 400 m wide and 250 m deep. Calculate the circumference of Mount Marapi's crater.

Circumference = 2 x 3,142 x radius (3)

5.1.4 Use the calendar below to determine how many days passed before the volcano erupted again on 22 December.

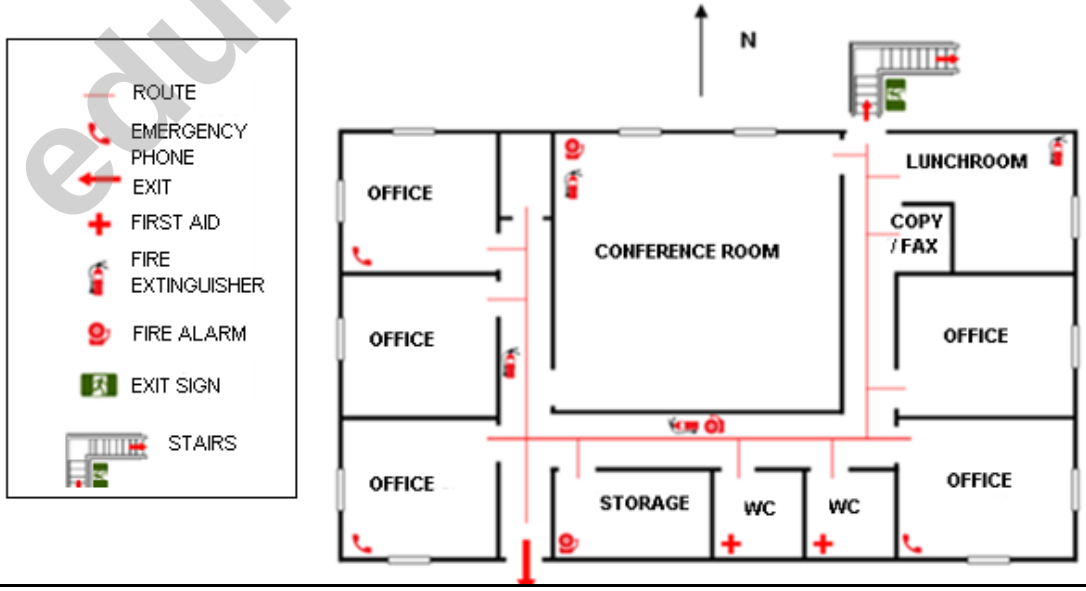
DECEMBER 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

(2)

5.1.5 Mount Marapi is located approximately 28 km north of Yogyakarta city which has a population of 2,4 million. If 45% of the population had to be evacuated, calculate how many people were evacuated. (2)

5.2 The Salvation Army is a well-known welfare organisation that helps people in need. Below is the evacuation plan of their offices in Indonesia.



[Source: https://www.mydraw.com/templates-emergency-evacuation-plans-small-office-evacuation-plan]

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5.2.1 State whether the offices are in a double or a single - story building? Give a reason for your answer. (3)

5.2.2 How many fire extinguishers are in the building? (2)

5.2.3 Give ONE reason why it is important to have an evacuation plan. (2)

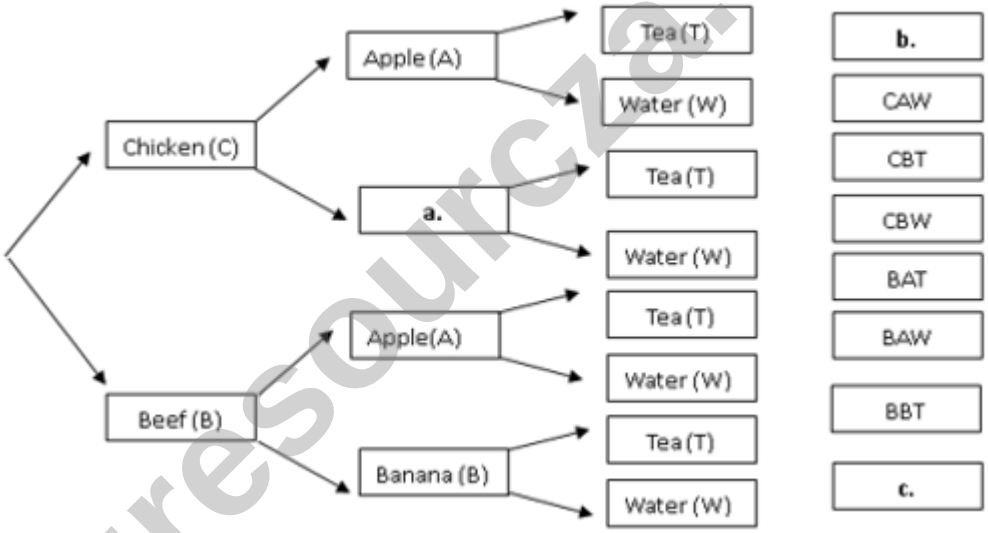
5.3 The Salvation Army often distributes food to people in need. People can choose from the following options:

PROTEIN: CHICKEN OR BEEF

FRUIT: APPLE OF BANANA

DRINK: TEA OR WATER

Tree diagram



5.3.1 Complete the above tree diagram by determining the missing information represented by ***a, b*** and ***c***. (3)

5.3.2 Determine the probability that a person will pick beef, an apple and tea in a food parcel. Write your answer as a percentage. **Round your answer to the nearest whole number.** (3)

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GRAND TOTAL: [150]

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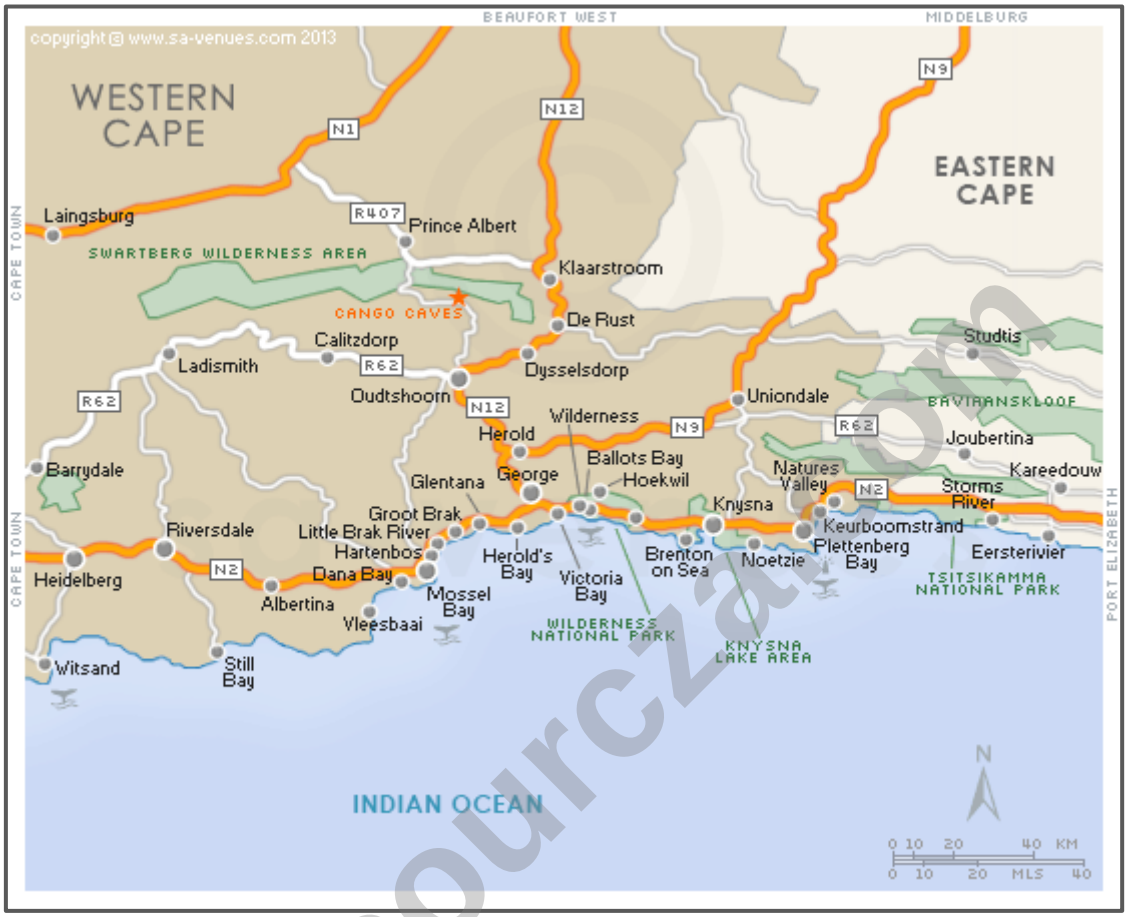
ANNEXURE A

QUESTION 3.1: GARDEN ROUTE OF SOUTH AFRICA



[Source: https://www.sa-venues.com/maps/gardenroute/physical.php]

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