



# basic education

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Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## SENIOR CERTIFICATE EXAMINATIONS

**MATHEMATICAL LITERACY P1**

**2018**

**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 13 pages, 1 answer sheet and  
an addendum with 3 annexures.**

**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. 2.1 Use the ANNEXURES in the ADDENDUM to answer the following questions:
  - ANNEXURE A for QUESTION 2.1
  - ANNEXURE B for QUESTION 4.1
  - ANNEXURE C for QUESTION 5.2
- 2.2 Answer QUESTION 5.1.8 on the attached ANSWER SHEET.
- 2.3 Write your centre number and examination number in the spaces on the ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.
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 necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

**QUESTION 1**

1.1

The graphs below show the water tariffs for Cape Town and Johannesburg. Study the graphs below and answer the questions which follow.

<b>CAPE TOWN</b>			
	<b>Kilolitres (kℓ) used per month</b>	<b>Price</b>	<b>Increase (%)</b>
Step 1	0–6	Free R4,56	New
Step 2	6–10,5	R16,54 R17,75	7,3%
Step 3	10,5–20	R23,54 R25,97	10,3%
Step 4	20–35	R40,96 R43,69	6,6%
Step 5	35–50	R66,41 R113,99	71,6%
Step 6	> 50	R200,10 R302,24	51%
<b>JOHANNESBURG</b>			
	<b>Kilolitres (kℓ) used per month</b>	<b>Price</b>	<b>Increase (%)</b>
Step 1	0–6	Free R7,14	New
Step 2	6–10	R7,14 R7,58	6,2%
Step 3	10–15	R12,07 R13,17	9,1%
Step 4	15–20	R17,65 R19,63	11,2%
Step 5	20–30	R24,03 R26,96	12,2%
Step 6	30–40	R25,81 R29,22	13,2%
Step 7	40–50	R32,27 R37,11	18%
Step 8	> 50	New R38,72	20%
<b>Key: 2016/17</b> <span style="display: inline-block; width: 15px; height: 10px; background-color: black; vertical-align: middle;"></span> <b>2017/18</b> <span style="display: inline-block; width: 15px; height: 10px; background-color: gray; vertical-align: middle;"></span>			

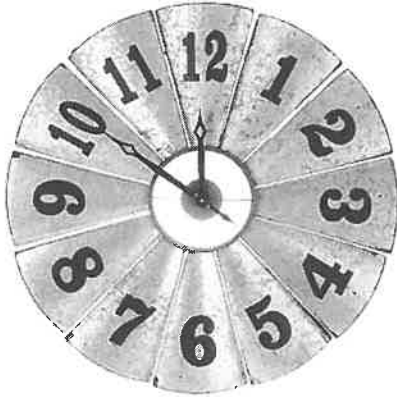
[Adapted from [www.graphics24.co.za](http://www.graphics24.co.za)]

- 1.1.1 State the type of graph used to represent this data. (2)
- 1.1.2 Arrange Cape Town's percentage increase in descending order. (2)
- 1.1.3 Identify the step that indicates the largest increase (in rand) in Cape Town's water tariff from 2016/17 to 2017/18. (2)
- 1.1.4 Determine in which ONE of the two cities water is more expensive. (2)
- 1.1.5 Calculate the cost of 3,5 kℓ of water in Johannesburg during 2017/18. (2)
- 1.1.6 Is the data given categorically or numerically? (2)

1.2 The price list given below shows the selling price and profit for different types of clocks. Study the price list and answer the questions that follow.

**CLOCK A**

Selling price: R3 350,00  
Profit: R914,00



**CLOCK B**

Selling price: R220,00  
Profit: R60,00



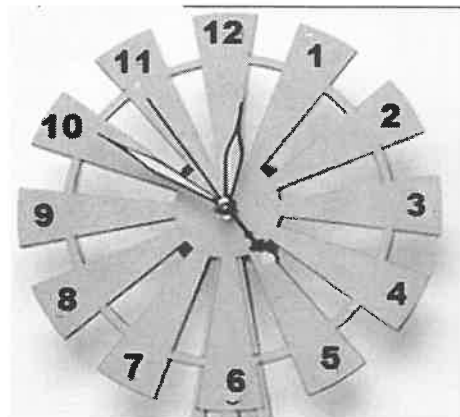
**CLOCK C**

Selling price: R2 100,00  
Profit: R573,00



**CLOCK D**

Selling price: R5 950,00  
Profit: R1 623,00



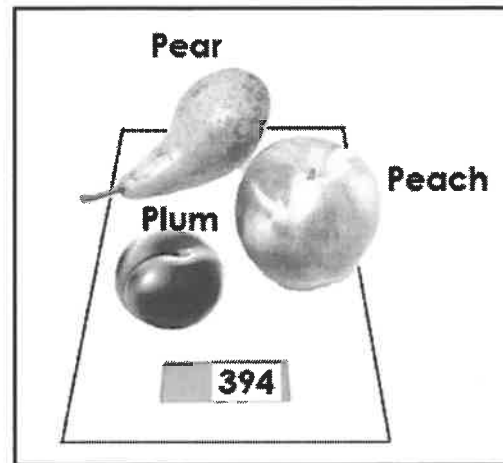
All prices exclude 14% VAT.

[Adapted from [www.pricecheck.co.za](http://www.pricecheck.co.za)]

- 1.2.1 Explain the term *cost price*. (2)
- 1.2.2 Calculate the cost price of **CLOCK A**, excluding VAT. (2)
- 1.2.3 Write down the time on **CLOCK B**, using the 24-hour format if it represents the time in the evening. (2)
- 1.2.4 Calculate the total profit made if all four clocks are sold. (2)

1.3

The photograph below shows an electronic kitchen scale (in grams) with three fruits placed on the scale.



The mass of the pear is 128 g.

The mass of the plum is half the mass of the pear.

**NOTE:** 1 kg = 1 000 g

[Adapted from [www.pricecheck.co.za](http://www.pricecheck.co.za)]

Use the photograph and information above to answer the questions that follow.

- 1.3.1 Convert the total mass of the fruit into kg. (2)
- 1.3.2 The pear is removed from the kitchen scale. Write down the new reading (in grams) shown on the kitchen scale. (2)
- 1.3.3 Show how the mass of 202 g for the peach was calculated. (3)
- 1.3.4 Determine the probability of randomly selecting a banana from the fruit placed on the kitchen scale. (2)
- 1.3.5 Write down the simplified ratio of the total mass of fruit to the total mass of the pear. (2)

[31]

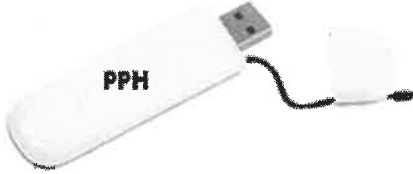

**QUESTION 2**

- 2.1 Mrs Chan, a teacher from Brakpan, received a monthly statement from GEMS (Government Employee Medical Scheme), as shown in ANNEXURE A. Mrs Chan has one dependent, her son Lee, on her medical aid.

Use ANNEXURE A to answer the questions that follow.

- 2.1.1 Which month is covered by this statement? (2)
- 2.1.2 State why the member had to pay R445,10 to the supplier. (2)
- 2.1.3 Write down the name of the general practitioner visited. (2)
- 2.1.4 Calculate the new price of the acute medication (under the tariff code) if the price increased by 6,3%. (3)
- 2.1.5 Calculate the total amount of tax claimable in the previous statements if the tax claimable is the amount paid by the member directly to the supplier. (2)
- 2.1.6 Define the term *debit* within the context of the statement. (2)
- 2.1.7 Show how the total amount of R479,75 was calculated. (2)

- 2.2 John is interested in running a small internet station in a coffee shop. He searches the internet and finds the advertisement below on a website [www.wish.com](http://www.wish.com). ALL prices include 14% VAT.

	<p>Portable Pocket Hotspot (PPH) Was: R988,00 Now: R210,00</p>
	<p>New Ultra-thin mouse (UTM) Was: R223,00 Now: R13,00</p>

[Source: [www.wish.com](http://www.wish.com)]

Study the advertisement above and answer the questions that follow.

- 2.2.1 What does the acronym *VAT* stand for? (2)
- 2.2.2 Calculate the amount of VAT payable on the old price for the PPH. (3)
- 2.2.3 Calculate the difference between the *new price* and the *old price* of the UTM. (2)

2.3

John told his friend Errol, who lives in Botswana, about the profit he made when he sold the ultra-thin mouse (UTM).

Errol decided to join John as a business partner.

John and Errol then decided to share their profit in the ratio 3 : 2.

TABLE 1 below shows the currency conversion factors for a few of the currencies in terms of the South African currency on 7 January 2018.

**TABLE 1: CURRENCY CONVERSION FACTORS**

CURRENCY	UNITS PER ZAR	ZAR PER UNIT
Algerian dinar	9,546785	0,104747
Botswana pula(BWP)	0,797782	1,253475
Brazilian real	0,262231	3,813432
British pound	0,059861	16,705357
Mauritian rupee	2,726789	0,366732
Japanese yen	9,111043	0,109757

[Source: [www.x-rates.com](http://www.x-rates.com)]

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

2.3.1 Write down the exchange rate between the Botswana pula (BWP) and the South African rand (ZAR). (2)

2.3.2 List the currencies which are weaker than the ZAR. (3)

2.3.3 Each mouse costs R13,00 and is sold for BWP48.

(a) Convert R13,00 into BWP (2)

(b) Calculate the total number of UTMs sold if a total profit of BWP7526 was made. (4)

2.3.4 Calculate the amount (in BWP) that Errol will receive if a total profit of BWP7526 was made. (3)

2.3.5 Show how the Algerian dinar of 0,104747 ZAR per unit was obtained. (2)

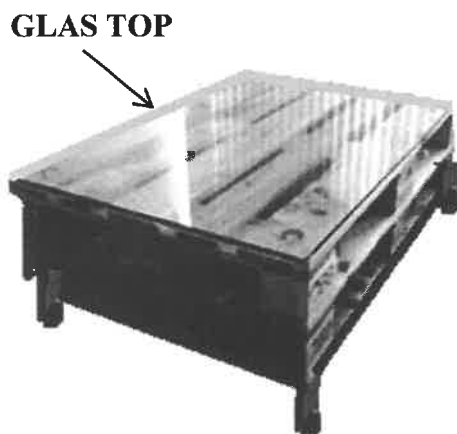
[38]

## QUESTION 3

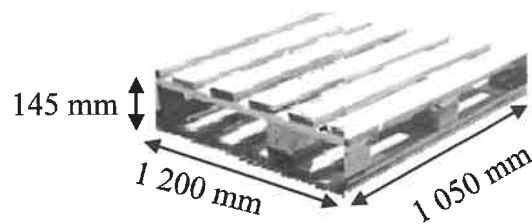
- 3.1 Olwethu intends opening a coffee shop. She wants to use tables made with pallets similar to the one in the picture below. Each table will have two pallets attached to legs with wheels. A piece of glass will be placed on the table surface.

The dimensions of each pallet are 1 200 mm × 1 050 mm × 145 mm.

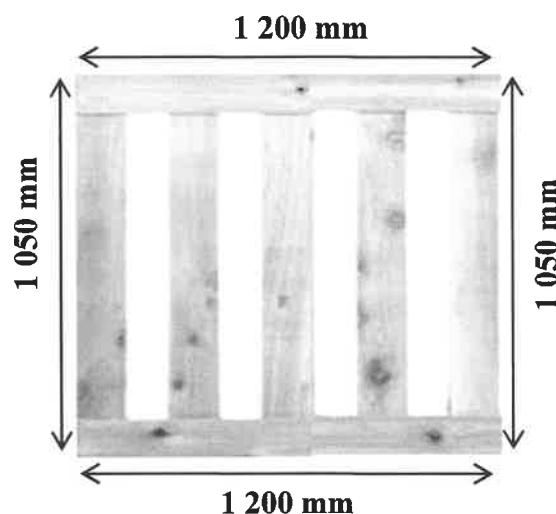
**PHOTOGRAPH OF PALLET  
TABLE**



**SIDE VIEW OF ONE PALLET**



**TOP VIEW OF PALLET**



[Adapted from [www.pinterest.com](http://www.pinterest.com)]

Use the information and photographs above to answer the questions that follow.

- 3.1.1 Calculate the number of pallets needed to produce 12 tables. (2)
- 3.1.2 Calculate the total height of the table, excluding the glass top, if the leg, including the wheel, is 200 mm high. (3)
- 3.1.3 Calculate the area (in mm<sup>2</sup>) of the glass top.  
You may use the formula:  
**Area = length × width** (3)
- 3.1.4 For safety reasons a rubber strip will be placed around the edge of the glass top.  
Calculate the total length (in mm) of rubber required for this purpose. (3)

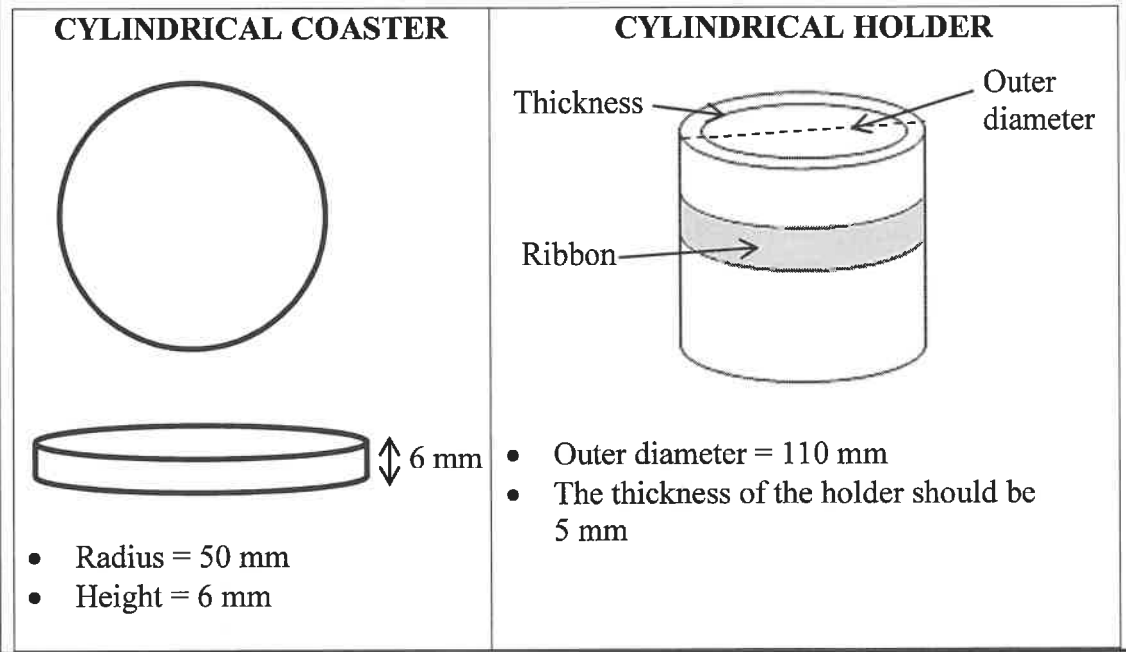


3.2

Olwethu has seen a cylindrical holder which can be used to store **coasters**. A **coaster** is a small tray or mat to place under a glass to protect the table from moisture.

Each coaster has a radius of 50 mm and a height of 6 mm.

Each holder can accommodate exactly 8 coasters with no space at the top. The holder is made of plastic material, 5 mm thick.



[Adapted from [www.pinterest.com](http://www.pinterest.com)]

Use the information above to answer the questions that follow.

- 3.2.1 The holder will have a decorative ribbon around it. The ribbon will be 2 cm longer than the circumference of the holder so that a bow can be tied in the ribbon.

Calculate the total length (in cm) of ribbon needed for one holder.

You may use the following formula:

$$\text{Total length of ribbon} = \pi \times \text{diameter} + \text{overlap}, \text{ and using } \pi = 3,142 \quad (4)$$

- 3.2.2 (a) Write down the inner radius (in mm) of the cylindrical holder. (2)
- (b) Hence, calculate the space needed in the holder to fit exactly 8 coasters.

You may use the following formula:

$$\text{Volume of cylinder} = \pi \times \text{radius}^2 \times \text{height}; \text{ and using } \pi = 3,142 \quad (4)$$

**[21]**

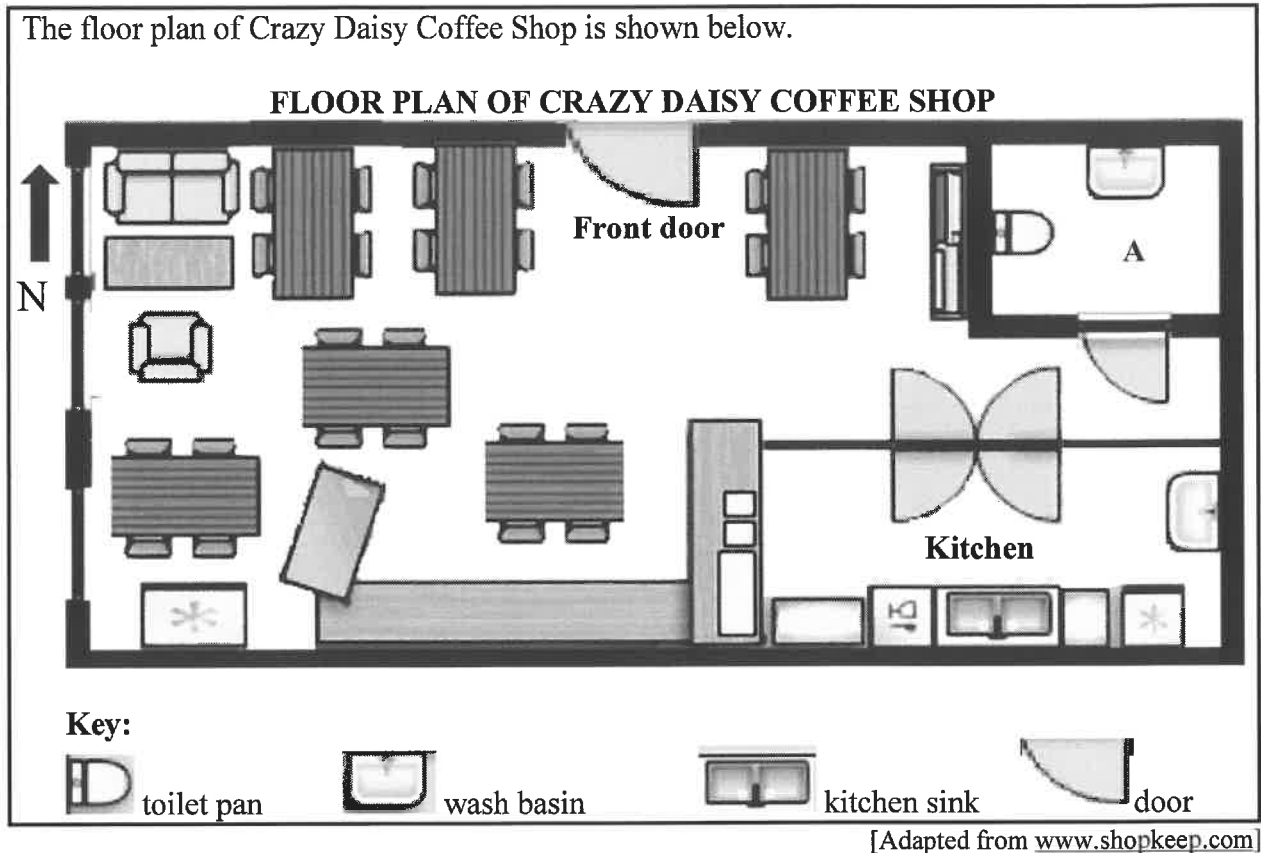
**QUESTION 4**

- 4.1 Crazy Daisy Coffee Shop is situated in the north wing of a shopping mall. The layout plan (drawn to scale) of the shopping mall is given in ANNEXURE B.

Use ANNEXURE B to answer the questions that follow.

- 4.1.1 Write down the shop number of Crazy Daisy Coffee Shop. (2)
- 4.1.2 State which parking area is closest to Toy World. (2)
- 4.1.3 Write down the name of the shop which has the biggest floor area. (2)
- 4.1.4 The manager of shop 18 ordered a cup of coffee and a slice of cake to be delivered by Crazy Daisy Coffee Shop.  
Give the delivery man a set of directions from Crazy Daisy Coffee Shop up to the entrance of shop 18. (4)
- 4.1.5 Calculate the total number of doors shown on this layout plan. (2)
- 4.1.6 Write down the probability of randomly selecting a shop that has TWO door entrances. (2)
- 4.1.7 Determine the probability of randomly selecting a shop that is NOT labelled with an even number. (2)

4.2 The floor plan of Crazy Daisy Coffee Shop is shown below.



Use the floor plan above to answer the questions that follow.

- 4.2.1 Explain the meaning of the term *floor plan*. (2)
- 4.2.2 Identify the room labelled A. (2)
- 4.2.3 Give the general direction of the kitchen from the front door. (2)
- 4.2.4 The measured width of the coffee shop is 70 mm. The actual width is 15 m.  
Determine the scale (rounded off to the nearest whole number) of the floor plan. (3)

[25]

## QUESTION 5

5.1

Statistics South Africa (STATSSA) collects and releases data based on passenger transport annually. TABLE 2 below shows the 2016 data for land passenger transportation.

**TABLE 2: 2016 DATA FOR LAND PASSENGER TRANSPORT**

	LAND TRANSPORT				TOTAL LAND	
	RAIL		ROAD		Passenger journeys in thousands	Income in millions (R)
	Passenger journeys in thousands	Income in millions (R)	Passenger journeys in thousands	Income in millions (R)		
<b>JAN.</b>	30 526	238	24 279	748	54 805	986
<b>FEB.</b>	36 528	266	27 684	757	64 212	1 023
<b>MAR.</b>	34 250	254	30 277	869	64 527	1 123
<b>APR.</b>	32 940	238	24 268	743	57 208	981
<b>MAY</b>	32 372	233	25 940	770	58 312	1 003
<b>JUN.</b>	32 741	216	25 308	790	58 049	1 006
<b>JUL.</b>	31 792	247	23 609	768	55 401	1 015
<b>AUG.</b>	33 550	251	24 835	769	58 385	1 020
<b>SEP.</b>	38 024	275	27 144	836	65 168	1 111
<b>OCT.</b>	35 802	269	24 304	771	60 106	1 040
<b>NOV.</b>	34 700	254	25 225	782	59 925	1 036
<b>DEC.</b>	23 592	198	22 313	801	45 905	999
<b>TOTAL</b>	<b>396 817</b>	<b>...</b>	<b>305 186</b>	<b>9 404</b>	<b>702 003</b>	<b>12 343</b>

[Adapted from [www.statssa.co.za](http://www.statssa.co.za)]

Use the table above to answer the questions that follow.

- 5.1.1 Write down the month with the highest income for rail transportation. (2)
- 5.1.2 Calculate the mean monthly income for rail transportation. (3)
- 5.1.3 Calculate the road transportation income for April as a percentage of the total land income. (3)
- 5.1.4 Write down the total number of land passenger journeys for December. (2)
- 5.1.5 Write down (in words) the total number of passenger journeys for September. (2)
- 5.1.6 Calculate the median total land income. (3)
- 5.1.7 Write down the probability, as a decimal, of randomly selecting a month when the rail income for passenger transport was less than R200 000 000. (3)
- 5.1.8 A bar graph showing the monthly income for road transport for the last six months of the year, is drawn on ANSWER SHEET 1. On the same set of axes, draw another bar graph representing the monthly income for rail transport for the last six months of the year. (6)

- 5.2 The pie charts on ANNEXURE C show the different sources of income for households in the Western Cape and the Northern Cape in 2016.

Use ANNEXURE C to answer the questions that follow.

- 5.2.1 If the total number of households in the Western Cape was 2 768 000 during 2016, calculate the number of households that depend on grants as a source of income. (3)
- 5.2.2 Identify the THIRD HIGHEST source of income in the Western Cape. (2)
- 5.2.3 Calculate the difference between the number of households in the Western Cape and the Northern Cape that depended on business as a source of income for 2016. (3)
- 5.2.4 Determine the percentage (to TWO decimal places) of remittances in the Northern Cape if there were 532 000 households. (3)

**TOTAL: 150**

**ANSWER SHEET 1**

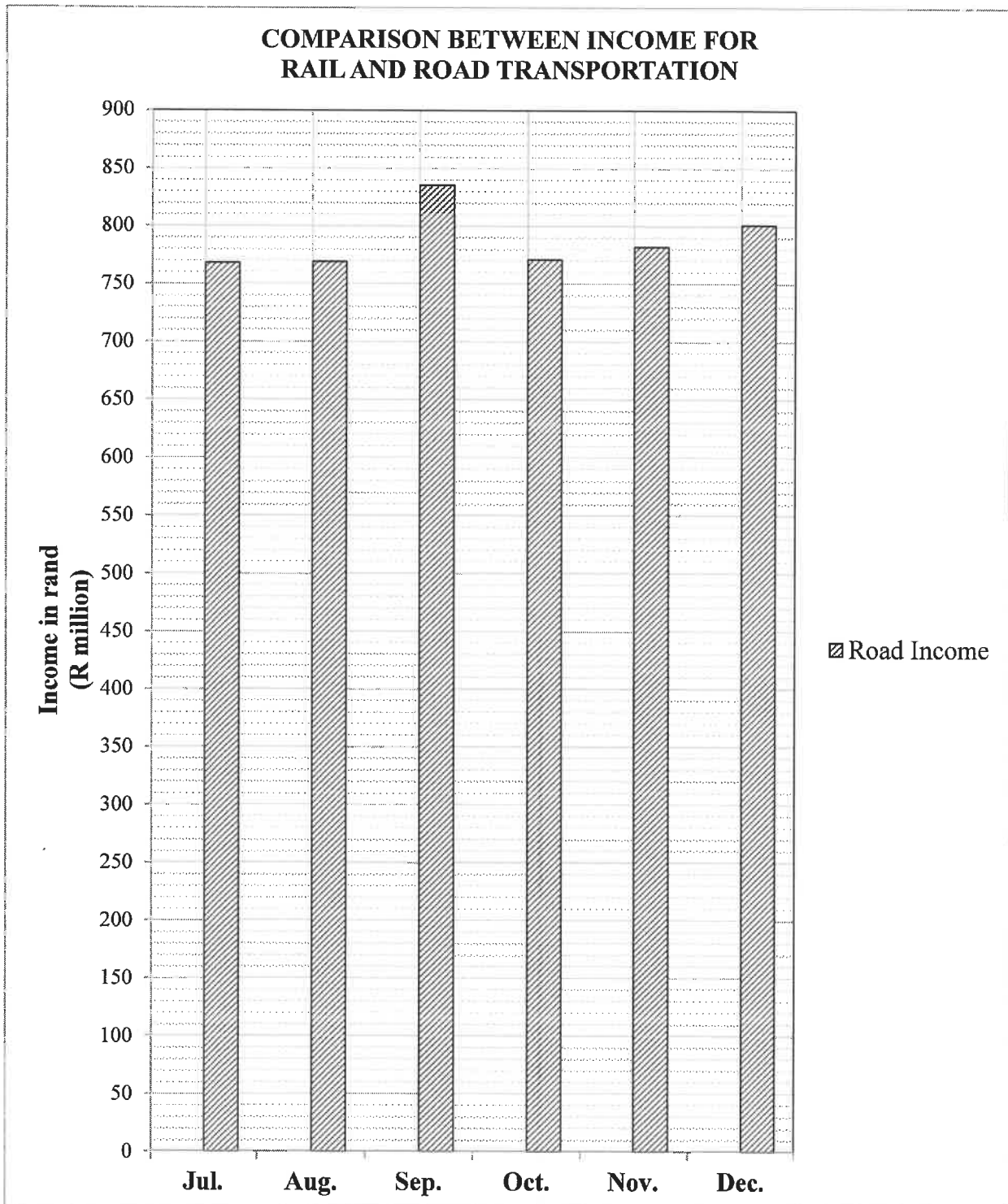
**QUESTION 5.1.8**

**CENTRE NUMBER:**

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**EXAMINATION NUMBER:**

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Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **SENIOR CERTIFICATE EXAMINATIONS**

**MATHEMATICAL LITERACY P1**

**ADDENDUM**

**2018**

**This addendum consists of 4 pages with 3 annexures.**

## ANNEXURE A

## QUESTION 2.1

GEMS		MEMBER: 3526178 MRS CHAN				STATEMENT REFERENCE: A356748 DOCUMENT REFERENCE: 5109725				DATE STATEMENT 15/12/17 187992		
		Transaction information				Payment information						
Date treated	Patient	Tariff code	Amount claimed	Benefit approved	Scheme paid supplier	Scheme paid member	Member owes scheme	Member paid/owes supplier	See below	Amount paid in hospital benefit	Amount paid from other limits	Tax claimable amount
<b>DIS-CHEM PHARMACY 098 234 (Chemist)</b>												
08/12/17	Lee	Acute	736,90						9505		173,03	
08/12/17	Lee	Chronic	173,03	173,03	173,03						117,44	
08/12/17	Lee	Chronic	117,44	117,44	117,44						61,50	
08/12/17	Lee	Chronic	61,50	61,50	61,50						80,98	
08/12/17	Lee	Chronic	80,98	80,98	80,98						46,80	
08/12/17	Lee	Chronic	46,80	46,80	46,80							
<b>Dhlamini M DR 1627805 (General Practitioner)</b>												
08/12/17	Lee	0192	343,00								343,00	343,00
09/12/17	Lee	0132	102,10								102,10	102,10
<b>Totals:</b>			<b>1 661,75</b>	<b>479,75</b>							<b>445,10</b>	<b>445,10</b>

Summary of Financial Information	
Payable to Member (Credit)	0,00
Less owed to Scheme (Debit)	0,00
Member to pay Supplier(s) (Debit)	445,10
Tax claimable to date	5 326,66

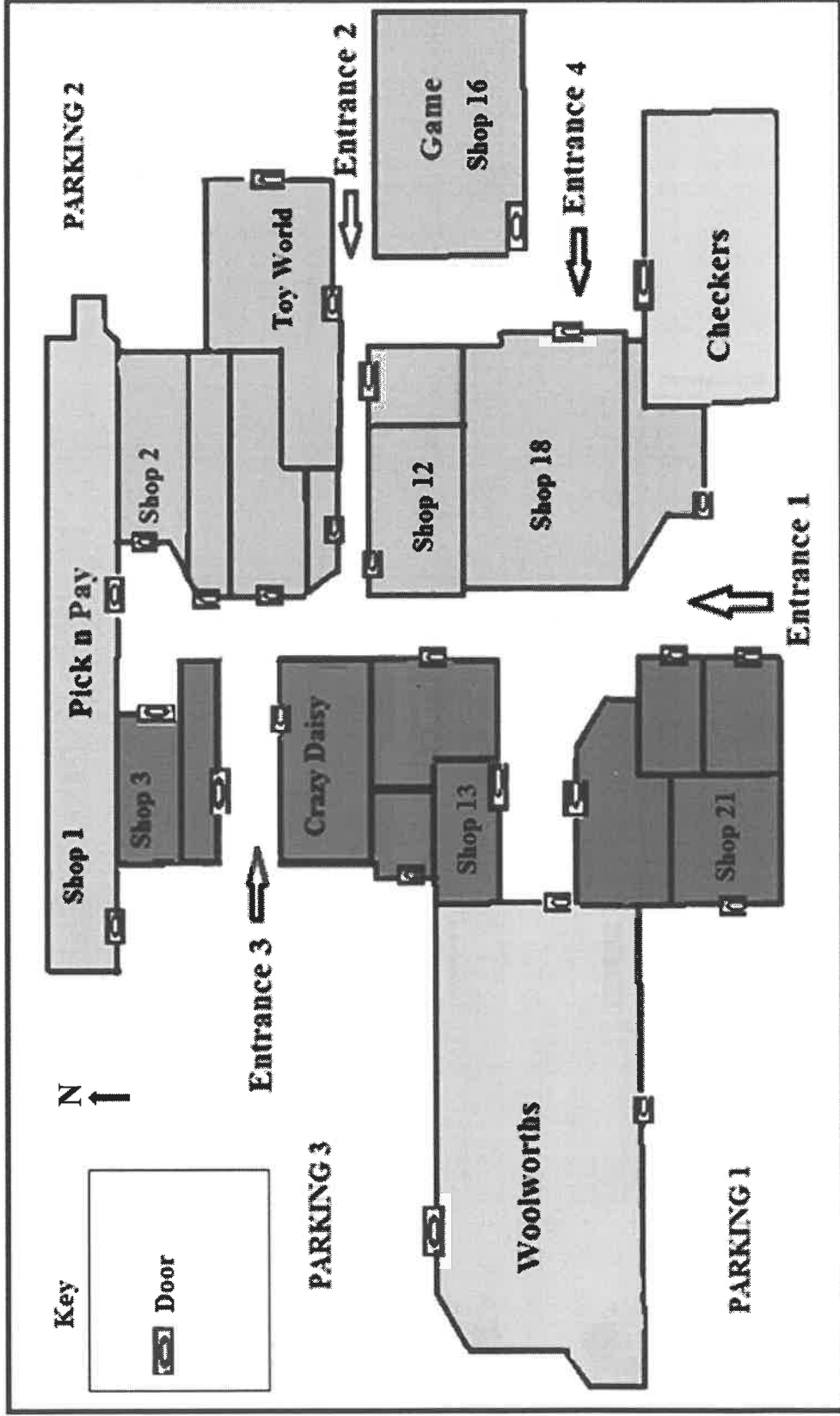
Summary of codes	
870	Overall Limit Exceeded
9505	Pre authorisation required



ANNEXURE B

QUESTION 4.1

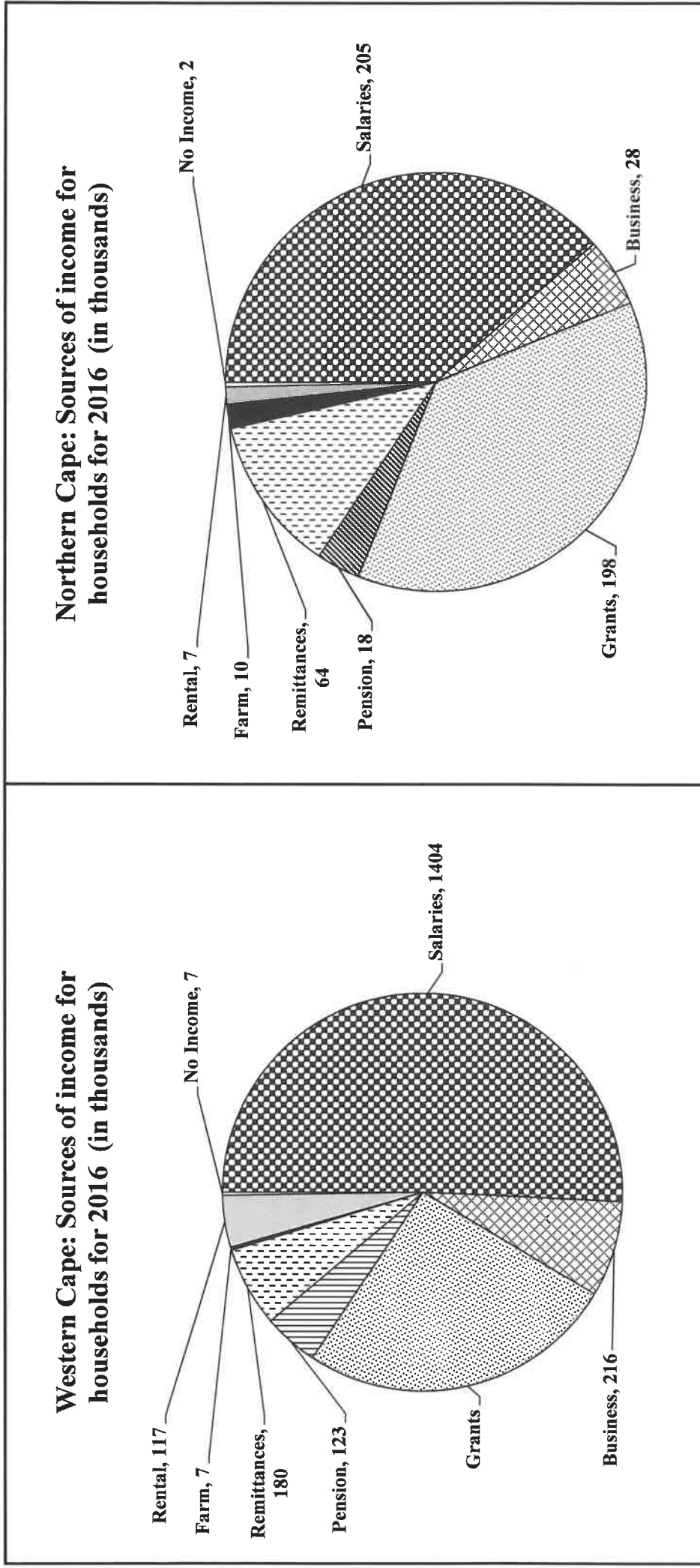
LAYOUT PLAN OF THE SHOPPING MALL



[Adapted from [www.thenewoakparkmall.com](http://www.thenewoakparkmall.com)]

ANNEXURE C

QUESTION 5.2 PIE CHARTS SHOWING THE DIFFERENT SOURCES OF INCOME FOR TWO PROVINCES



[Adapted from [www.statssa.co.za](http://www.statssa.co.za)]