education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

COMMON TEST

JUNE 2019

MARKS: 100

TIME: 2 hours

This question paper consists of 8 pages and an Addendum with 5 Annexures (5 pages).

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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 2.2.1, 2.2.2 and 2.2.3
- ANNEXURE B for QUESTION 2.3.1
- ANNEXURE C for QUESTION 3.1.1, 3.1.2, 3.1.3 and 3.1.4
- ANNEXURE D for QUESTION 4
- ANNEXURE E for QUESTION 5

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.

10. Write neatly and legibly.

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QUESTION 1

1.1

Tumi and Wendy were bridesmaids in their friends' wedding in May 2018. Tumi bought a pair of shoes at R433,20 including 14% VAT in March 2018. Wendy bought a similar pair of shoes in April 2018 after VAT increased to 15%.

1.1.1 Calculate the price of Tumis' pair of shoes excluding VAT. (2)

1.1.2 Calculate the price of Wendy's pair of shoes including VAT. (2)

1.1.3 Calculate the amount saved by Tumi by buying shoes before the VAT increase. (2)

1.2

In Langlaagte municipality, electricity is charged at a flat rate of R1,56 per kilo-Watt-hour (KWh) for the first 500KWh (including VAT).

1.2.1 Determine the cost of 421 KWh of electricity. (2)

1.2.2 How many kilo-Watt hours (KWh) of electricity will one get for R468,00? (2)

1.3

The weekly amounts of pocket money in rands for 15 learners are shown in Table 1 and their heights are shown in Table 2 below.

Table 1: Amounts of pocket money in rands for 15 learners.

40	40	50	60	60	60	65	67	69	70	72	74	80	88	100

Table 2: Heights of 15 learners in metres.

1,5	1,5	1,55	1,55	1,6	1,6	1,6	1,62	1,64	1,65	1,68	1,68	1,7	1,75	1,75

1.3.1 Is the data in TABLE 1 discrete or continuous? (2)

1.3.2 Determine the range of the amounts of pocket money in rands. (2)

1.3.3 Determine the mode for the learners' heights. (2)

1.3.4 Determine the median for the amounts of learners' pocket money. (2)

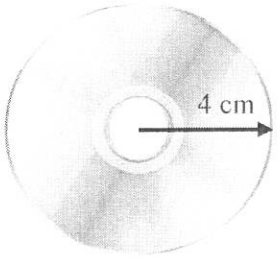
1.3.5 Determine the probability of randomly selecting a learner with R100 pocket money (Leave your answer as a common fraction). (2)

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1.4

Themba has a permanent job, and wants to work overtime so that he can buy a bicycle for his younger brother which costs R1 850,00. For overtime, he earns R55,00 per hour.

1.4.1 How many hours must he work in overtime to earn R1 850,00? (2)



1.4.2 (a) Calculate the diameter of the disc above in cm. (2)

(b) Convert the answer in (a) above to millimetres. (2)

1.5 The bar scale below shows units in metres. Answer the following questions by referring to it.



1.5.1 The length of the above bar scale is 5 cm. How many metres does it represents in real life? (2)

1.5.2 Which scale is more accurate between the bar scale and the number scale? (2)
[30]

QUESTION 2

2.1

Mr Lukhele received a lump sum of R30 000,00 which he got from his employer for 25 years' service award. He invests this money at the bank which offers 4,2% interest rate per annum for 2 years compounded half yearly.

2.1.1 Calculate the interest rate per half year as a decimal. (3)

2.1.2 Calculate the total amount Mr Lukhele will have in his investment after 2 years. (5)

2.1.3 Determine the amount of interest accumulated over 2 years. (2)

2.1.4 Calculate the interest as a percentage of the initial amount over 2 years. (2)

2.2

Mr Lukhele (49 years) has a housewife (45 years) and 3 children aged 22, 20 and 18 respectively. He has a sister (extended family) who is 43 years old who depends on him. He takes out a funeral plan for his family and his sister. ANNEXURE A in the addendum shows funeral plan cover and monthly contributions.

Use the information above, ANNEXURE A to answer the questions that follow.

2.2.1 Mr Lukhele takes out a cover of:

(a) R30 000,00 each for himself and his wife. Calculate the monthly contribution. (2)

(b) R15 000,00 each for three children. Calculate the monthly contribution. (2)

(c) R20 000,00 for his sister. Calculate the monthly contribution. (2)

2.2.2 Hence calculate the total monthly contribution. (2)

2.2.3 Mr Lukhele's sister was involved in a taxi accident and she died instantly, how much will Mr Lukhele get from the funeral plan? (2)

2.3 On ANNEXURE B in the addendum there are playing cards. Determine the probability (as a percentage) of randomly selecting a card with a 5. (3)
[25]

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QUESTION 3

3.1

Lindy plans to wear a traditional attire on her friend's traditional wedding day. She wants a dressmaker to sew a yellow dress with white, red and black patches. The diagram of one of the patches is shown in ANNEXURE C in the addendum. The upper rectangle A will be red, middle rectangle B will be white and the lower right angled triangle C will be black.

Use the information above and ANNEXURE C to answer the questions that follow.
You may use the following formulae:

Area of a rectangle = length × width

Area of a triangle $= \frac{1}{2} \times$ **base × height**

3.1.1 Calculate the perimeter of the whole patch. (3)

3.1.2 Calculate the area of Rectangle A. (3)

3.1.3 Determine the height of the whole patch. (2)

3.1.4 Calculate the area of Triangle C. (2)

3.2

Lindy's weight is 65 000 grams and her height is 1,65 metres.

Calculate Lindy's Body Mass Index (BMI). Round off the answer to two decimal places.

You may use the following formula:

$$\textbf{BMI} = \frac{\textbf{weight in kg}}{(\textbf{height in metres})^2}$$ (4)

[14]

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QUESTION 4

The newly-weds bought a site on which they will build their house. They chose the plan with elevations as shown in ANNEXURE D.

Use the information above and ANNEXURE D to answer the questions that follow.

4.1 Which elevations are shown in Side 2 and Side 3 (4)

4.2 The length of the bar scale on the floor plan is 4 cm and the total length of the western wall is 12 cm. Calculate the actual length of the wall in metres. (2)

4.3 Use the mearsurements of the bar scale to create a unit ratio scale in the form: 1: … (3)

4.4 Name the two rooms that get the sunlight first at sunrise. (4)

[13]

QUESTION 5

Rashid is an insurance broker selling car insurance. He studies the table for motor trade sales at current prices (in R million) from 2015 to 2018. The adapted table is shown in ANNEXURE E in the addendum.

Use the information above and ANNEXURE E in the addendum to answer the questions that follow.

5.1 Determine the missing values **A** and **B**. (4)

5.2 Give the month and year with the highest motor trade sales from 2015 to 2018. (2)

5.3 Write the motor trade sales for January 2018 in words. (2)

5.4 Calculate the percentage increase in total motor trade sales from 2016 to 2017.

You may use the following formula:

$$\textbf{Percentage increase} = \frac{\textbf{New total} - \textbf{Old total}}{\textbf{Old total}} \times \textbf{100\%}$$ (3)

5.5 Arrange the motor trade sales for January in 2015, 2016, 2017 and 2018 in descending order. (2)

5.6 Calculate the difference in motor trade sales for November in 2015 and 2016. (3)

5.7 Calculate the mean for motor trade sales for December in 2015, 2016, 2017 and 2018. (3)

[18]

TOTAL MARKS: 100

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ADDENDUM

JUNE 2019

This Addendum consists of 5 Annexures (5 pages).

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ANNEXURE A

QUESTIONS 2.2.1; 2.2.2 and 2.2.3

Funeral plan cover and monthly contributions

Individual Cover					
Age	R10,000	R15,000	R20,000	R25,000	R30,000
18 – 25	R99	R115	R130	R145	R160
26 – 35	R110	R125	R140	R155	R170
36 – 50	R125	R145	R165	R185	R205
51 – 60	R155	R185	R215	R245	R275
61 – 70	R230	R265	R300	R335	R370
Family Cover					
AGE	R10,000	R15,000	R20,000	R25,000	R30,000
18 – 25	R140	R160	R180	R200	R220
26 – 35	R140	R160	R180	R200	R220
36 – 50	R160	R190	R220	R250	R280
51 – 60	R195	R250	R305	R360	R415
61 – 70	R280	R350	R420	R490	R560
Extended Family					
Age	R10,000	R15,000	R20,000	R25,000	R30,000
0 – 35	R22	R33	R44	R55	R66
36 – 50	R32	R48	R64	R80	R96
51 – 60	R47	R71	R94	R118	R141
61 – 70	R90	R135	R180	R225	R270
71 – 80	R215	R323	R430	R538	R645

Six months waiting period on death due to natural causes.
Death as a result of accident, there is no waiting period and the cover amount doubles.

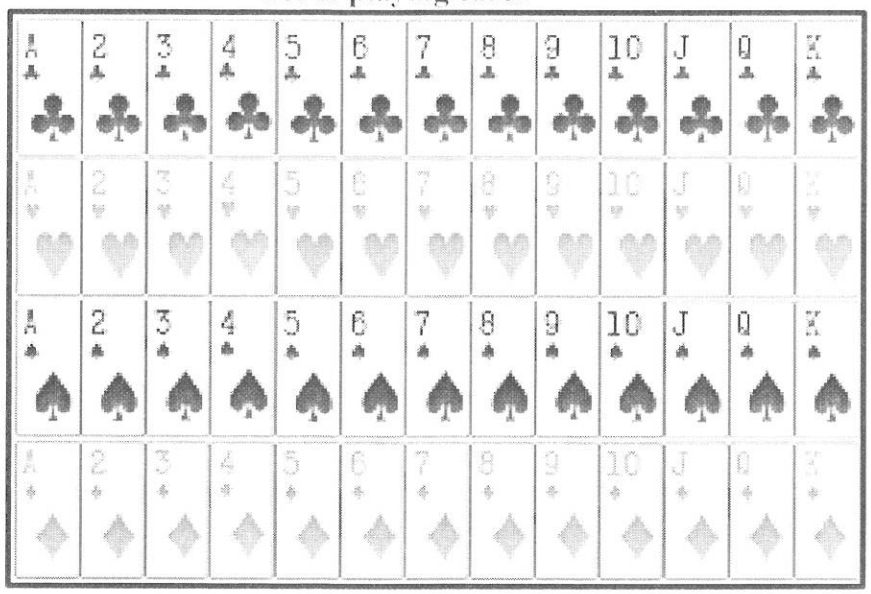
Source: www.funeralplancovers.com

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ANNEXURE B

QUESTION 2.3.1

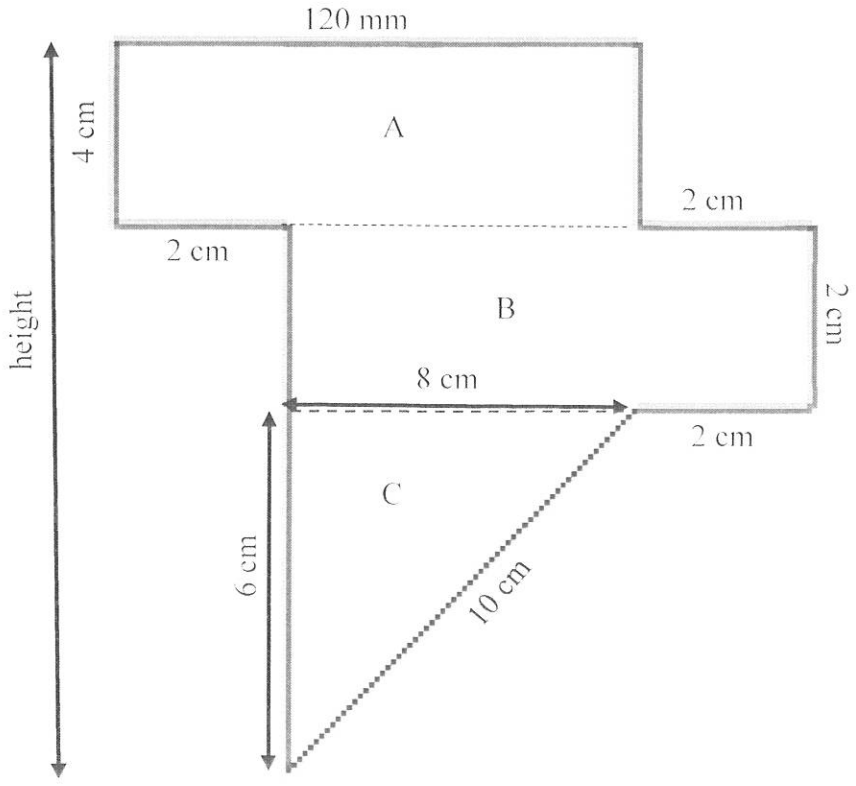
Set of playing cards



ANNEXURE C

QUESTIONS 3.1.1; 3.1.2; 3.1.3 and 3.1.4

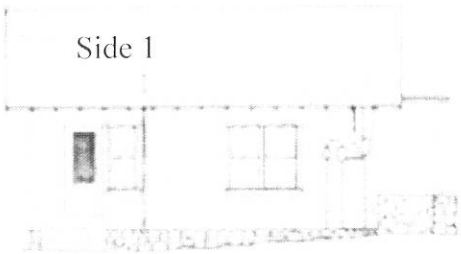
Diagram of a patch of cloth



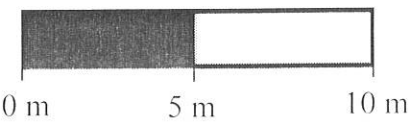
ANNEXURE D

QUESTION 4

FLOOR PLAN WITH ELEVATIONS

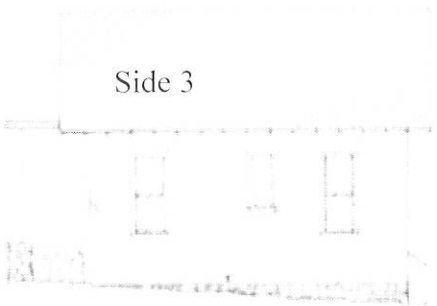














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ANNEXURE E

QUESTION 5

Motor trade sales at current prices (R million) Table adapted

Month	2015	2016	2017	2018
Jan	47 356	46 014	49 527	52 789
Feb	47 214	50 267	51 025	53 065
Mar	52 526	50 474	55 680	58 072
Apr	46 637	50 155	46 625	49 316
May	48 474	51 893	53 465	55 832
Jun	50 497	B	52 583	55 039
July	53 475	52 846	52 124	56 036
Aug	49 397	51 308	53 619	57 149
Sept	50 975	51 029	53 127	53 776
Oct	51 618	51 704	56 411	59 841
Nov	51 509	53 843	58 029	59 766
Dec	48 944	50 119	53 070	50 938
Total	A	610 190	635 285	661 619

Source: www.statssa.gov.za

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MARKING GUIDELINE

JUNE 2019

MARKS: 100

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
MCA	method with consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD/RM	Reading from a table/ graph/ diagram/Map
SF	Correct substitution in a formula
O	Opinion/ reason/deduction/example/Explanation
J	Justification
R	Rounding off
F	deriving a formula
AO	Answer only full marks
P	Penalty e.g. for units, incorrect rounding off etc.
NPR	No penalty for rounding / units

This marking guideline consists of 8 pages.

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QUESTION 1 [30 MARKS]

Ques No.	Solution	Explanation	T & L
1.1.1	Price of a pair of shoes excluding VAT $= \frac{R433,20}{1,14}$ ✓MA = R380,00 ✓A **OR** Price of a pair of shoes excluding VAT = R433,20 × $\frac{100}{114}$ ✓MA = R380,00✓A	1MA dividing by 1,14 1A price excluding VAT **OR** 1MA multiplying by $\frac{100}{114}$ 1A price excluding VAT **AO** (2)	
1.1.2	Price of Wendy's pair of shoes including VAT = R380,00 × 1,15✓MA = R437,00 ✓CA **OR** Price including VAT = R380,00 + (0,15× R380,00) ✓MA = R437,00 ✓CA	**CA from 1.1.1** 1MA multiplying by 1,15 1CA Price including VAT **OR** 1MA multiplying by 0,15 1CA price excluding VAT **AO** (2)	F L1
1.1.3	Amount saved = R437,00 – R433,20 ✓M = R3,80 ✓CA	**CA from 1.1.1** 1M subtraction 1CA amount **AO** (2)	F L1
1.2.1	Cost = 421 kWh × R1,56 ✓MA = R656,76 ✓A	1MA multiplication 1A cost **AO** (2)	F L1
1.2.2	No. of kWh = $\frac{R468,00}{R1,56}$ ✓MA = 300 ✓A	1MA dividing by R1,56 1A number of kWh **AO** (2)	F L1
1.3.1	Discrete ✓✓A	2A correct choice (2)	DH L1
1.3.2	Range = 100 – 40 ✓M = 60 ✓A	1M subtraction 1A range **AO** (2)	DH L1
1.3.3	Mode = 1,6 m ✓✓A	2A mode (2)	DH L1
1.3.4	Median = R67 ✓✓A	2A median (2)	DH L1
1.3.5	P(R100 pocket money) = $\frac{1}{15}$ ✓A ✓A	1A numerator 1A denominator (2)	P L1

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1.4.1	No. of hours = $\frac{\text{R1850}}{\text{R55,00 per hour}}$ ✓MA = 33,64 hours ✓A	1MA dividing by R55,00 per hour 1A no. of hours **NPR** **AO** (2)	M L1
1.4.2 (a)	Diameter = 4 cm × 2 ✓MA = 8 cm ✓A	1MA multiplying by 2 1A diameter **AO** (2)	M L1
(b)	Diameter in mm = 8cm × 10 ✓MA = 80 mm ✓CA	**CA from 1.4.2 (a)** 1MA multiplying by 10 1CA length in mm **AO** (2)	M L1
1.5.1	500 metres✓✓A	2A number of metres (2)	MP L1
1.5.2	Bar scale ✓✓A	2A correct choice (2)	
		[30]	

QUESTION 2 [25 MARKS]

2.1.1	Interest rate per annum $= \frac{4,2}{100}$ ✓M = 0,042 Interest rate per half year $= \frac{0,042}{2}$ ✓M = 0,021 ✓CA **OR** Interest rate per half year $= \frac{4,2}{200}$ ✓M = 0,021 ✓CA	1M dividing by 100 1M dividing by 2 1CA interest rate **OR** 1M dividing by 200 1CA interest rate **ACCEPT** 2,1% (3)	F L1
2.1.2	1st half year ✓M R30 000,00 + (0,021 × R30 000,00) = R30 630,00 ✓CA **OR** R30 000,00×1,021= R30 630,00 ✓CA 2nd half year R30 630,00 + (0,021 × R30 630,00) = R31 273,23 ✓CA **OR** R30 630,00×1,021= R31 273,23 ✓CA 3rd half year R31 273,23 + (0,021 × R31 273,23) = R31 929,97 ✓CA **OR** R31 273,23×1,021= R31 929,97 ✓CA 4th half year R31 929,97 + (0,021 × R31 929 ,97) = R32 600,50 ✓CA **OR** R31 929,97×1,021= R32 600 50 ✓CA	**CA from 2.1.1** 1M multiplication 1CA amount 1CA amount 1CA amount 1CA amount 1CA amount 1CA amount 1CA amount 1CA amount 1CA amount (5)	F L2

2.1.3	Interest = R32 600,50 – R30 000,00 ✓M = R2 600,50 ✓CA	**CA from 2.1.2** 1M subtraction 1CA interest (2)	F L1
2.1.4	% of interest = $\frac{\text{R2 600,50}}{\text{R30 000,00}} \times 100\%$ ✓M = 8,67% ✓CA	1M % concept 1CA percentage **NPR** **AO** (2)	F L2
2.2.1 (a)	Monthly contribution for himself and his wife = R280,00✓✓RT	2RT R280 (2)	F L1
(b)	Monthly contribution for children = R160,00 ✓✓RT	2RT R160 (2)	F L1
(c)	Monthly contribution for sister = R64,00 ✓✓RT	2RT R64 (2)	F L1
2.2.2	Total monthly contribution = R280,00 + R160 + R64,00 ✓M = R504 ✓CA	**CA from 2.2.1** 1M adding values 1CA total (2)	F L1
2.2.3	Cover amount = R20 000,00 × 2 ✓MA = R40 000,00 ✓A	1MA multiplying R20 000 by 2 1A amount **AO** (2)	F L1
2.3.1	P(card with a 5) = $\frac{4 \checkmark A}{52 \checkmark A} \times 100\%$ = 7,692% ✓CA	1A numerator 1A denominator 1CA percentage **NPR** (3)	P L2
		[25]	

QUESTION 3 [14 MARKS]			
3.1.1	Perimeter of the patch = (120 mm $\overset{\checkmark C}{\div}$ 10) + 4cm + 2cm + 2cm + 2cm + 10cm + 6cm + 2cm + 2cm + 4cm ✓M = 46 cm ✓CA	1C converting mm to cm 1M adding all sides 1CA perimeter (3)	M L2
3.1.2	Area of rectangle A = length × width = 12 cm × 4 cm ✓SF = 48 cm^2 ✓✓A	1SF correct substitution 1A area 1A unit (3)	M L2
3.1.3	Height of the patch = 6 cm + 2 cm + 4 cm ✓M = 12 cm ✓CA	1M adding correct values 1CA height **AO** (2)	M L2
3.1.4	Area of triangle C = $\frac{1}{2} \times$ base × height = 0,5 × 8 cm × 6 cm ✓SF = 24 cm^2 ✓A	1SF correct substitution 1A area (2)	M L2
3.2	BMI = $\frac{\text{weight in kg}}{(\text{height in metres})^2}$ weight in kg = 65 000 g ÷ 1 000 ✓C BMI = $\frac{65\text{ kg}}{(1{,}65\text{ m})^2}$ ✓SF = 23,87511478 kg/m^2 ✓CA ≈ 23,88 kg/m^2 ✓R	1C converting g to kg 1SF correct substitution 1CA BMI 1R rounding (4)	M L2
		[14]	

QUESTION 4 [13 MARKS]			
4.1	Side 2 North elevation ✓✓RM Side 3 West elevation ✓✓RM	2RM North elevation 2RM West elevation (4)	MP L1
4.2	4 cm : 10 m 12 cm : m $m = \frac{10 \times 12}{4}$ ✓M = 30 metres ✓CA	1M dividing by 4 1CA actual length (2)	MP L2
4.3	4 cm : 10 m 4 cm : 10 m × 100 ✓M $\frac{4}{4} : \frac{1000}{4}$ ✓M 1 : 250 ✓CA	1M multiplying by 100 1M dividing by 4 1CA ratio scale (3)	MP L1
4.4	Living room ✓✓RM Kitchen ✓✓RM	2 RM correct room 2 RM correct room (4)	MP L1
		[13]	

QUESTION 5 [18 MARKS]			
5.1	A = 47 356 +47 214+52 526 + 46 637 + 48 474 + 50 497 + 53 475 +49 397 + 50 975 +51 618 + 51 509 + 48 944 ✓MA = 598 622 ✓CA B = 610 190 – (46 014 + 50 267 + 50 474 +50 155 + 51 893 + 52 846 + 51 308 + 51 029 + 51 704 + 53 843 + 50 119) ✓M = 50 538 ✓CA	1MA adding all correct values 1CA value **ACCEPT** R598 622 million/ R598 622 000 000 1M subtracting correct values 1CA value **ACCEPT** R50 538 million/ R50 538 000 000 **NPR** (4)	DH L1
5.2	October ✓RT 2018 ✓RT	1RT month 1RT year (2)	DH L1
5.3	Fifty two billion seven hundred and eighty nine million rands. ✓✓A	2A correct words (2)	DH L2
5.4	Percentage increase = $\frac{\text{New total} - \text{Old total}}{\text{Old total}} \times 100\%$ = $\frac{R635285 - R610190}{R610190} \times 100\%$ ✓SF = 4,11% ✓CA	1SF correct substitution 1CA percentage (2)	DH L2
5.5	52 789; 49 527; 47 356; 46 014 ✓✓RT	2RT correct values in descending order (2)	DH L1
5.6	✓MA ✓M Difference = R53 843 – R51 509 = R 2 334 million /R 2 334 000 000✓CA	1MA identifying correct values 1M subtraction 1CA difference (3)	DH L1
5.7	Mean = $\frac{48944+50119+53070+50938}{4}$ ✓M = $\frac{203071}{4}$ ✓MA =R 50 767,75 million/R 50 767 750 000 ✓CA	1MA adding all values 1M dividing by 4 1CA mean (3)	DH L2
		[18]	
		TOTAL: 100	