education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 11

MATHEMATICAL LITERACY P1

COMMON TEST

JUNE 2019

MARKS: 75

TIME: 1½ hours

This question paper consists of 6 pages and an addendum with 1 annexure.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions. Answer ALL the questions.
2. Use ANNEXURE A in the ADDENDUM to answer Question 2.1.
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. Units of measurement must be indicated where applicable.
9. Maps and diagrams are not necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

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QUESTION 1

Tom surprises his wife on her birthday by buying her a 55 inch television set. The repayment period is 36 months and the monthly instalment is R570,00. Refer to the advertisement below.



(Source: Game stores catalogue Price valid from 20-24 March 2019)

Study the advertisement above and answer the questions that follow.

1.1 Write down the item number of the television set. (2)

1.2 Determine the repayment period in years. (2)

1.3 Convert the size of the television set from centimetres to metres. (2)

1.4 How many years warranty will Tom get after buying the television set? (2)

1.5 Write down the number of days for which the price of the television is valid. (2)

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1.6 Calculate the original price of the SAMSUNG television. (2)

1.7 Calculate (rounded off to ONE decimal place) the amount saved as a percentage of the SAMSUNG 55' TV's original price. (4)

1.8 Calculate the total amount to be paid by Tom at the end of 36 months. (2)

1.9 If Tom decides to buy the television cash, determine how much he will save instead of buying the television on hire purchase. (2)

1.10 Tom takes a loan of R300 000 from his bank. Interest will be charged at 3½% per annum, simple interest.

(a) Define the term interest rate. (2)

(b) Calculate the amount of interest for two years. (4)
(26)

QUESTION 2

2.1

John and his family travelled with his new car from Port Elizabeth to Port Shepstone to visit his uncle during the September holidays. Refer to ANNEXURE A in the addendum that shows the road map of South Africa.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Give the name of the national road that John and his family will use from Port Elizabeth to Port Shepstone. (2)

2.1.2 Which ocean is on the west of Port Elizabeth? (2)

2.1.3 How many national roads connect to Bloemfontein? (2)

2.1.4 Name TWO towns which they will pass when travelling from Port Elizabeth to Port Shepstone. (2)

2.1.5 State the general direction of Lesotho from Western Cape. (2)

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2.1.6 Write down ONE advantage of using a bar scale. (2)

2.1.7 The distance that John travelled to his uncle's place is measured as approximately 7cm on the map. Use the bar scale to determine the estimated distance in kilometres that John travelled. (4)

2.1.8 John drives at an average speed of 110km/h. Use the estimated distance calculated in 2.1.7 above to determine the time (rounded off to the nearest hour) it takes to travel from Port Elizabeth to Port Shepstone.

You may use the following formula: $\textbf{Time} = \frac{\textbf{Distance}}{\textbf{speed}}$ (3)

2.2 John's car has a tank that can hold 66 litres of petrol. His engine has a fuel consumption rate of 14,8 litres per 100 kilometres travelled.

2.2.1 Determine the total distance he can travel on a full tank of petrol. (3)

2.2.2 Calculate the cost for a full tank of petrol if the price of petrol is R16,23 per litre. (2)

2.2.3 Calculate how much money John will spend on fuel for a return trip from Port Elizabeth to Port Shepstone. (6)

2.2.4 The average daytime temperature for Port Elizabeth in September is 18°C.

Convert the average temperature to °F.

You may use the following formula: $^{\circ}\textbf{C} = (^{\circ}\textbf{F} - \textbf{32}) \div \textbf{1,8}$ (3)
[33]

QUESTION 3

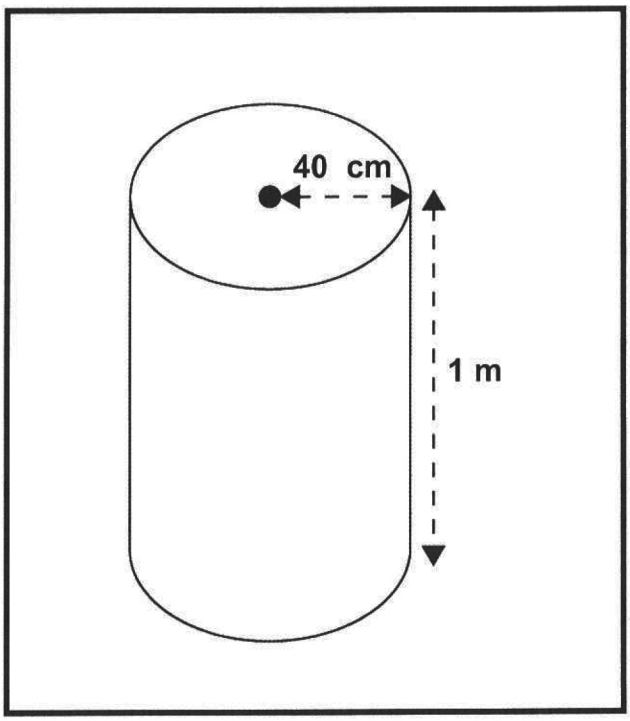
Sam owns a Construction Company. He has been hired to build a monument that is to be placed on Victoria Embankment. The monument is to be made out of concrete. The concrete mixture is made up of cement powder, sand and water. There is one-part sand to every three parts cement.

3.1 Write down the ratio of sand : cement used the in the concrete mixture. (2)

3.2 500 ml of water are required for every 400 g of dry mixture. Sam has 60 kg of dry mixture. How many litres of water will be needed? (5)

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3.3 Sam mixes the ingredients in a barrel with a height of 1 m and a radius of 40 cm as shown in the diagram below.



3.3.1 Define the term capacity. (2)

3.3.2 Determine the diameter of the barrel in metres. (2)

3.3.3 Calculate the volume of the barrel (rounded off to the nearest litre)

NOTE: 1 litre = 1000cm^3

You may use the formula:

Volume of the barrel = π **x r^2 x h,** where $\pi = 3{,}142$. (5)

[9]

TOTAL MARKS: 75

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ADDENDUM

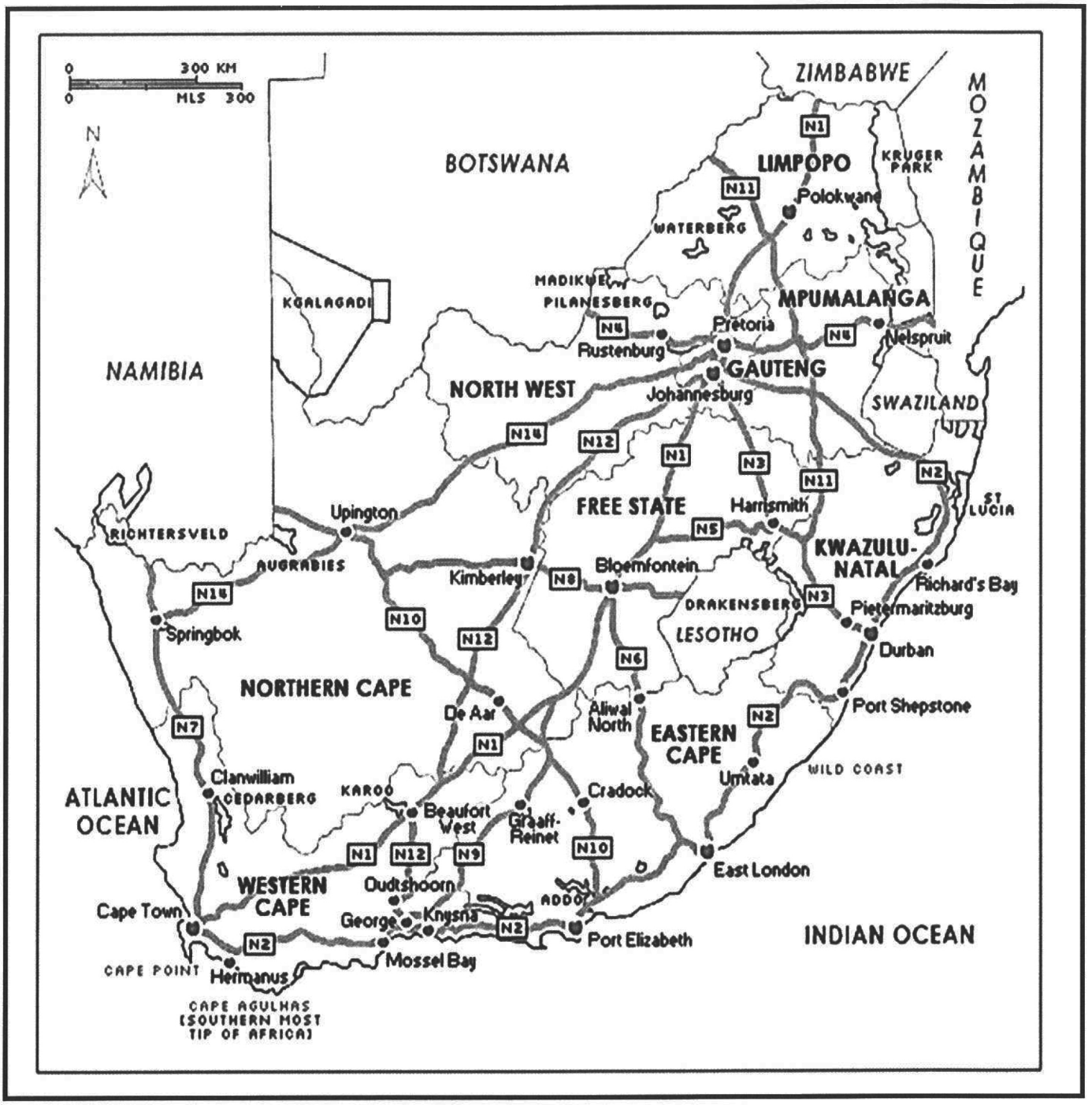
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NB: This addendum consists of 2 pages with 1 annexure.

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ANNEXURE A

QUESTION 2.1



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MARKING GUIDELINE

NATIONAL SENIOR CERTIFICATE

GRADE 11

MARKS: 75

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

This marking guideline consists of 6 pages.

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QUESTION 1 [26 MARKS]

	Solutions	Explanation	L/T
1.1.	Item number: 783461 ✓✓RD	2RD Item number (2)	F L1
1.2	Number of years = $\frac{36}{12}$ ✓ MA = 3 ✓A	1MA dividing 36 by 12 1A correct year **AO** (2)	F L1
1.3	= 139 ÷ 100 ✓C = 1.39m ✓A	1C Dividing by 100 1A Size in metres **AO** (2)	F L1
1.4	2 years warranty ✓ ✓ RD	2RD reading correct years (2)	F L1
1.5	5 days ✓✓ A	2A correct no. of days (2)	F L1
1.6	R12 999 + R4300 ✓MA = R17 299 ✓A	1MA adding R4300 1A original price **AO** (2)	F L1
1.7.	Amount saved = $\frac{\text{R4300}}{\text{R12999}}$ x 100 ✓MA ✓M = 33.079% ✓ CA = 33,1% ✓R	1MA for dividing correct values 1M Percentage concept 1CA Percentage 1R rounding (4) **AO**	F L1
1.8	Total amount = R570 x 36 ✓MA = R 20 520 ✓A	1MA Multiplying by 36 1A Total Amount **AO** (2)	F L1
1.9.	Amount saved = R20 520 – R12 999 ✓M = R7 521 ✓CA	1M Subtraction 1CA Amount saved **AO** (2)	F L1

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QUESTION 1			
	Solutions	**Explanation**	**L/T**
(a)	Interest rate is the percentage used to calculate the amount of interest that is either earned or charged. ✓✓D	2D correct definition (2)	L1 F
(b)	R300 000 x $\frac{3,5}{100}$ x 2 ✓✓✓ M = R21000 ✓CA **OR** Interest = $\frac{3,5}{100}$ x R300 000 ✓✓M = R 10 500 x 2 ✓M = R21 000 ✓CA	1M dividing 3,5 by 100 1M multiplying by R300 000 1M multiplying by 2 1CA interest **OR** 1M dividing 3,5 by 100 1M multiplying by R300 000 1M multiplying by 2 1CA interest (4)	L2 F
		[26]	

QUESTION 2 [15 MARKS]			
Ques	**Solutions**	**Explanation**	**L/T**
2.1.1	N2 ✓✓ RD	2RD Reading from the map (2)	M&P L1
2.1.2	Atlantic Ocean ✓✓ RD	2RD Reading from the map (2)	M&P L1
2.1.3	3 ✓✓A	2A correct number of roads. (2)	M&P L1
2.1.4	East London ✓ A Umtata ✓ A	2A correct towns (2)	M&P L1
2.1.5	North East ✓✓ A	2A correct direction (2)	M&P L1
2.1.6	Bar s scales are quick and easy to use ✓✓ A Or any other valid answer	2A correct answer (2)	M&P L1
2.1.7	2.2cm:300km ✓ M 7cm:Actual distance(km) Estimated distance = $\frac{7 \times 300}{2.2}$ ✓M ✓M = 954.55km ✓A	1M distance 1M Multiplication 1M Dividing 1A Distance (4)	M&P L2
2.1.8	Time = $\frac{954,55 \text{ km}}{110 \text{ kmh}}$ ✓SF = 8,677 hours ✓CA = 9 hours ✓R	**CA from 2.1.7** 1SF correct substitution 1CA correct hours 1R rounding (3)	M L2
2.2.1	Distance = $\frac{66 \times 100}{14,8}$ ✓M ✓M = 445,94 km ✓A	1M multiplying 60 by 100 1M dividing by 14,8 1A for correct distance (3)	M&P L2
2.2.2	R66ℓ x R16,23 ✓M = R1071,18 ✓ CA	1M multiplying R15,60 x 60 1CA for cost (2)	F L1

2.2.3	Return trip = 954,55 km x 2 ✓ M = 1909,10 km ✓ CA $\frac{14.8 \times 1909,10}{100}$ ✓M ✓M Cost of fuel = R282,5468 x R16,23 ✓M = R4585,73 ✓ CA **OR** Return trip = 954,55 km x 2 ✓ M ✓M = 1909,10 km ✓ CA Cost of fuel = $\frac{66 \times 1909,10}{445,945}$ ✓ M ✓ M = 282,5468 x R16,23 ✓ M = R4585,73 ✓ CA	1M multiplying by 2 1CA correct distance 1M multiplying by 14.8 1 M dividing by 100 1M multiplying by R16,23 1CA cost of fuel **OR** 1M multiplying by 2 1CA correct distance 1M multiplying by 60 1 M dividing by 800 1M multiplying by R15,60 1CA cost of fuel (6)	F L3
2.2.4	18°C =(°F -32) ✓ SF 18 x 1,8= °F -32 32,2+32= °F ✓S °F=64,4 ✓ CA	1SF correct substitution 1S simplification 1CA correct temperature (3) **[33]**	M L2

QUESTION 3 [16 MARKS]

	Solutions	Explanation	L/T
3.1.	1 : 2✓✓ A	2A correct ratio (2)	M L1
3.2	60 kg x 1000 = 60 000 g ✓ C $\frac{60000 \times 500}{400}$ ✓M ✓M 75000 ÷ 1000 ✓ M = 75 ℓ ✓ CA	1 C conversion 1M multiplying by 500 1M dividing by 400 1M dividing by 1000 1CA correct answer (5)	M L2
3.3.1	The maximum amount an object can hold.✓✓D	2 D correct definition (2)	M L1
3.3.2	Diameter = 40 cm x 2 = 80 cm ÷ 100 ✓ MA = 0,8 m ✓ A	1 MA multiplying radius by 2 1A correct answer (2)	
3.3.3	Volume = 3,142 x (40 cm)^2 x 100 cm ✓ C = $\frac{502720 cm^3}{1000}$ ✓ M = 502,72 ℓ ✓CA =502 ℓ ✓R	1C conversion 1M dividing by 1000 1CA correct volume 1 R rounding (5) **[16]**	M L2

TOTAL MARK: [75]