GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION

2017

MARKING GUIDELINES

MATHEMATICAL LITERACY P1 (10601)

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification / Reason / Explain
S	Simplification
RT / RD / RG	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off OR omitting units

KEY TO TOPIC SYMBOL:

F = Finance; M = Measurement; MP = Maps, Plans and other representations; DH = Data Handling; P = Probability

12 pages

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION – 2017

MATHEMATICAL LITERACY
(First Paper)

MEMORANDUM

QUESTION 1

Q	ANSWER	EXPLANATION	LEVEL
1.1			
1.1.1	**Tariff:** A list or schedule of pre-determined prices for services like trains, buses, water- and electricity usage. ✓✓*A* **OR** Cost per unit	2 A correct amount (2)	F1
1.1.2	30 AMP circuit breaker ✓✓*RT*	2 RT correct amount (2)	F1
1.1.3	✓*MA* 115 353 – 114 628 = 725 ✓*A* **OR** ✓*MA* R158, 78 ÷ R0, 219 = 725 ✓*A*	1 MA subtraction 1 A correct answer 1 MA division 1 A correct answer **Answer only full marks** (2)	F1
1.1.4	✓*MA* 0, 219 × 725 = R158, 78 ✓*A*	1 MA multiplying 1 A correct answer **Answer only full marks** (2)	F1
1.1.5	✓*MA* $\frac{14}{100}$ × R158, 78 = R22, 23 ✓*A*	1 MA multiplying by 14% 1 A answer **Answer only full marks** (2)	F1
1.1.6	✓*MA* R181, 01 + R95, 76 = R276, 77 ✓*A*	1 MA adding 1 A correct answer **Answer only full marks** (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
1.2			
1.2.1	Jan 2015 = ± 210 ✓*RG* April 2017 = 300 ✓*RG*	1 A answer for Jan 2015 1 A answer for Apr 2017 **Accept 210 – 220 for January** (2)	D1
1.2.2	March 2017 ✓✓*RG*	2 RG reading from graph (2)	D1
1.2.3	250 : 450 ✓*A* 5 : 9 ✓✓*S*	1 A for correct ratio 2 S simplification (3)	D1
1.2.4	Discrete ✓✓*A*	2 A correct answer (2)	D1
1.3			
1.3.1	Europe ✓*RG* 36 % ✓*RG*	1 RG correct continent 1 RG correct percentage (2)	D1
1.3.2	✓*M* $\frac{30}{100}$ × 4 300 = 1 290 visitors ✓*A*	1 MA multiply by 30% 1 A correct answer (2)	D1
1.3.3	✓*MA* $\frac{8}{100}$ × 1 075 = 86 1 075 + 86 = 1 161 visitors ✓*A* **OR** = 1 075 × 1, 08 ✓*MA* = 1 161 visitors ✓*A* **OR** ✓*M* $\frac{108}{100}$ × 1 075 = 1 161 ✓*M*	1 MA multiply by 8% 1 A answer (2)	D1
1.3.4	✓*MA* 36% - 2% = 34% ✓*A*	1 MA subtraction 1 A correct answer (2)	D1
			[29]

QUESTION 2

Q	ANSWER	EXPLANATION	LEVEL
2.1			
2.1.1	R14 872,00 ✓✓*RT*	2 RT correct amount (2)	F1
2.1.2	✓*M* 2017 – 1972 = 45 years ✓*A*	1 M subtraction 1 A answer **Answer only full marks** (2)	F1
2.1.3	✓*M* $\frac{7,5}{100}$ × R14 872, 00 = R1 115, 40 ✓*CA* ✓*U*	1 M multiplying by 7, 5% 1 CA answer 1 U unit (3)	F1
2.1.4	Unemployment Insurance Fund ✓✓*A*	2 A correct answer (2)	F1
2.1.5 (a)	✓*M* $\frac{1}{100}$ × R14 872, 00 ✓*A* = R148, 72 ✓*A*	1 MA multiplying by 1% 1 A correct value 1 A answer **Answer only full marks** (3)	F1
(b)	✓*M* ✓*CA* R148, 72 × 2 = R297, 44 **OR** ✓*M* ✓C*A* R148, 72 + R148, 72 = R297, 44 **OR** ✓*M* $\frac{2}{100}$ × R14 872 = R297, 44 ✓*CA*	1 M multiply by 2 1 CA correct answer **CA from Q. 2.1.5 (a)** 1 M adding same amount 1 CA correct answer 1 M multiply by 2 and divide by 100 1 CA correct answer **Answer only full marks** (2)	F1

<table>
<tr><th>Q</th><th>ANSWER</th><th>EXPLANATION</th><th>LEVEL</th></tr>
<tr><td>2.1.6</td><td>C = R1 115, 40 + R1 680, 00 + R148, 72 + R1 390, 00 + R285 ✓M
= R4 619, 12 ✓CA

D = R17 272 – R4 619, 12 ✓M
= R12 652, 88 ✓CA</td><td>1 M adding
1 CA answer

1 M subtraction
1 CA Answer

Answer only full marks
(4)</td><td>F2</td></tr>
<tr><td>2.1.7</td><td>✓✓A
$\frac{R285}{R2\,400}$ × 100 ✓M

= 11, 875% ✓A

ACCEPT answers 11,89%, 11,9% and 12%.</td><td>1 A correct numerator
1 A correct denominator
1 M multiply by 100
1 CA answer

No penalty for rounding
(4)</td><td>F2</td></tr>
<tr><td>2.2</td><td>
<table>
<tr><th>Number of kilolitres used</th><th>Cost per kilolitre</th><th>Total Cost</th></tr>
<tr><td>6 kl</td><td>Free</td><td>R0, 00</td></tr>
<tr><td>9 kl</td><td>R7, 85</td><td>R70, 65</td></tr>
<tr><td>15 kl ✓A</td><td>R11,29</td><td>R169,35 ✓A</td></tr>
<tr><td>15 kl</td><td>R13,05</td><td>R195,75 ✓A</td></tr>
<tr><td>5 kl ✓A</td><td>R14,00</td><td>R70,00 ✓A</td></tr>
<tr><td></td><td>Total (VAT exclusive)</td><td>R505,75 ✓CA</td></tr>
<tr><td></td><td>VAT (14%)</td><td>R70,81 ✓CA</td></tr>
<tr><td></td><td>Total (VAT inclusive)</td><td>R576,56 ✓CA</td></tr>
</table>
</td><td>1 A for 15 kl
1 A for 5 kl
1 A for R169,35
1 A for R169,75
1 A for R70,00
1 CA for R505,75
1 CA for R70,81
1 CA for R576,56

(8)</td><td>F3</td></tr>
</table>

Q	ANSWER	EXPLANATION	LEVEL
2.3			
2.3.1	**Interest:** Money earned on investments or money paid to borrow money ✓✓*A* **OR** Payment from a borrower or institution to a lender	2 A correct answer **Accept any valid definition / explanation.** (2)	F1
2.3.2	✓*MA* R174 413 – R110 000 = R64 413✓*A*	1 MA subtracting 1 A correct answer **Answer only full marks** (2)	F1
2.3.3	✓*MA* 84 months ÷ 12 = 7 years✓*A*	1 MA divide by 12 1 A correct answer **Answer only full marks** (2)	F1
2.3.4	$\frac{Total\ Repayment - R82\,000}{Loan\ Amount} \times \frac{100}{1}$ $= \frac{R113\,663 - R82\,000}{R82\,000} \times \frac{100}{1}$ ✓*SF* = 38, 61% ✓*A* ✓*U*	1 SF 1 A correct answer 1 unit (%) **No penalty for rounding** (3)	F2
			[39]

QUESTION 3

Q	ANSWER	EXPLANATION	LEVEL
3.1	Circumference = diameter × π = 8 × 3, 142 ✓*SF* = 25, 136 m ✓*CA* ✓*U*	1 SF 1 A answer 1 U correct unit (3)	M2
3.2	✓*M* Perimeter = 25, 136 m + 10 m + 8 m + 10 m = 53, 136 m ✓*CA* = 53 m ✓	1 M adding values 1 CA answer 1 R Rounding (3)	M2
3.3.1	✓*M* Radius = $\frac{8\,m}{2}$ = 4 m ✓*A*	1 MA divide by 2 1 A answer for radius (2)	M1
3.3.2	Area = π × r^2 = 3, 142 × $(4m)^2$ ✓*SF* = 50, 27 m^2 ✓*A* Therefore: $\frac{50,27}{2}$ = 25, 14 m^2 ✓*A* ✓*U* **OR** V = ½ (π × r^2) = ½ (3, 142 × $(4m)^2$) ✓*SF* = ½ (50,27 m^2) ✓*A* = 25,14 m^2 ✓*A* ✓*U*	1 SF 1 A for 50,27 m^2 1 A for area of semi-circular part 1 U correct unit **NP no penalty for rounding** (4)	M1
3.4	V = π × r^2 × h = 3, 142 × $(4m)^2$ × 0, 8 m ✓*SF* = 40, 22 m^3 Therefore: $\frac{40,22}{2}$ ✓*M* = 20, 11 m^3 ✓*CA* ✓*U* **OR** V = ½ (π × r^2 × h) = ½ (3, 142 × $(4m)^2$ × 0, 8 m) ✓*SF* = ½ (40,22 m^3) ✓*M* = 20,11 m^3 ✓*CA* ✓*U*	1 SF 1 M divide by 2 1 CA answer 1 U correct unit (4)	M2
3.5	V = l × w × d = 10 m × 8 m × 2, 5 m ✓✓*SF* = 200 ✓*CA* m^3 ✓ *U*	2 SF substitute values 1 CA answer 1 U correct unit (4)	M2

Q	ANSWER	EXPLANATION	LEVEL
3.6	✓*M* 200 m^3 + 20, 11 m^3 = 220, 11 m^3 ✓*A*	1 M adding 1 CA Answer **CA from Q. 3.4 and Q 3.5** (2)	M1
3.7	✓*C* 220, 11m^3 × 1000 = 220 110 litres ✓*M* $\frac{220110}{1000}$ = 220 kl ✓*CA* **OR** 220,011 m^3 x $\frac{1000}{1000}$ ✓*C* ✓*M* = 220 kl ✓*CA*	1 C conversion to litres 1 M divide by 1000 1 CA answer **CA from Q. 3.6** **P Penalty for rounding** (3)	M3
3.8	°F = (1, 8 × °C) + 32 °F = (1, 8 × 29°) + 32 ✓*SF* = 84, 2° ✓*A* **OR** °C = (°F – 32) ÷ 1, 8 29° = (°F – 32) ÷ 1, 8 ✓*SF* 29° × 1,8 = °F – 32 52,2° + 32 = °F = 84,2° ✓*A*	1 SF substitution 1 A correct answer **Accept 84°** (2)	M2
			[27]

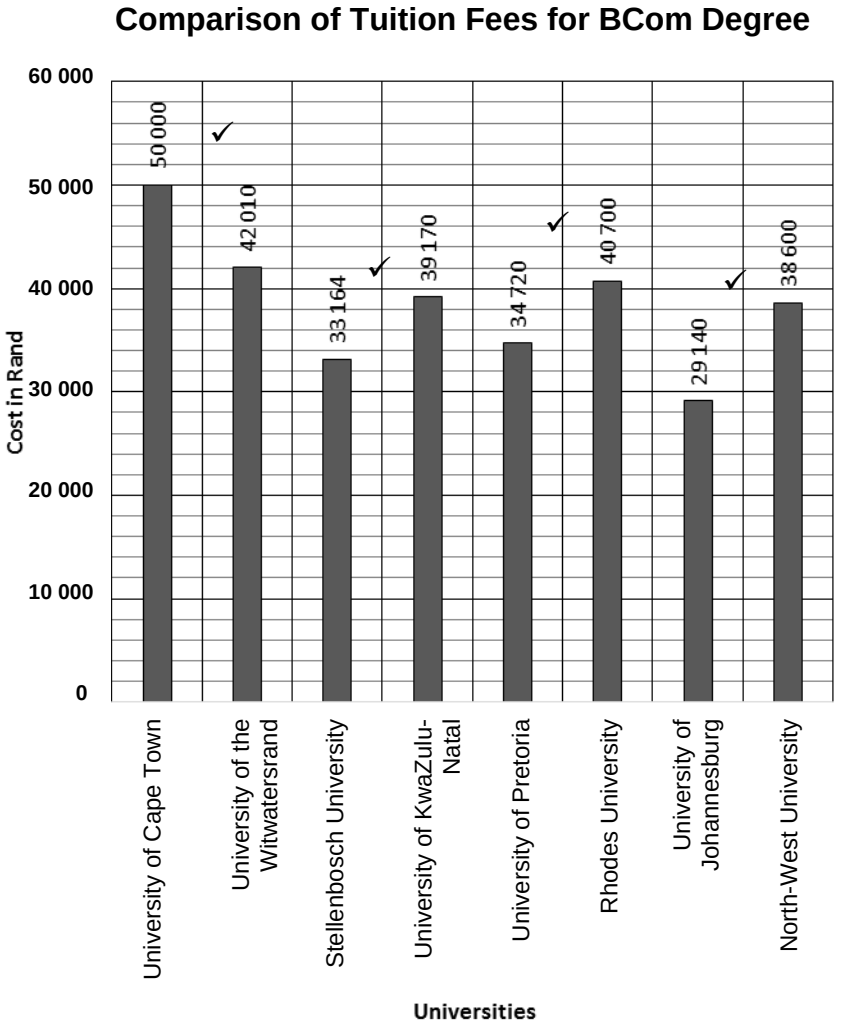
QUESTION 4

Q	ANSWER	EXPLANATION	LEVEL
4.1			
4.1.1	176 seats ✓✓ *A*	2 A correct answer (2)	MP1
4.1.2	8 wheel chairs ✓✓*A*	2 A correct answer (2)	MP1
4.1.3	North East ✓ ✓*A*	1 A answer (2)	MP1
4.1.4	F ✓*A* 14 ✓*A*	1 A row 1A seat number (2)	MP2
4.1.5	Go left from seat F15. ✓ *M* Turn right in the aisle between row E and F. ✓ *M.* Proceed in a North-easterly direction until you reach the stage straight ahead. ✓ *M*	1M left direction 1M right into aisle 1 M direction to stage **Penalise 1 mark for first going right and then turning left** (3)	MP2

Q	ANSWER	EXPLANATION	LEVEL
4.2.1	Instrumental music ✓*A* $\frac{12}{24}$; 50% ; 0, 5 ✓*A*	1 A correct answer 1 A answer in any given form as proof (2)	P2
4.2.2	$\frac{0}{24}$ **OR** 0 **OR** 0% **OR** impossible ✓✓*A*	2 A correct answer (2)	P2
4.2.3	✓*A* $\frac{6}{24}$ = 0, 25 ✓*A*	1 A correct fraction 1 A answer as decimal **Answer only full marks** (2)	P2
4.3			
4.3.1	Number scale ✓✓*A*	2 A correct answer (2)	MP1
4.3.2	It means that 1 unit on the map represents 200 units in reality. ✓✓*J*	2 J explanation (2)	MP1
4.3.3	12 doors ✓✓*A*	2 A correct answer **Accept 13 doors** (2)	MP2
4.3.4	West elevation ✓✓*A*	2 A correct answer (2)	MP2
4.3.5	Length = 26 mm ✓*RG* Breadth = 26 mm ✓*RG* ✓*U* **OR** Length × Breadth ✓*RG* ✓*RG* 26mm × 26mm ✓*U* **OR** Length = 2,6 cm ✓*RG* Breadth = 2,6 cm ✓*RG* Thus, 26 mm x 26 mm ✓*C*	1 RG measuring the length 1 RG measuring the breadth 1U correct values in mm **OR** 1 RG measuring the length 1 RG measuring the breadth 1C conversion to mm **Measure on final copy** (3)	MP1
			[28]

QUESTION 5

Q	ANSWER	EXPLANATION	LEVEL
5.1			
5.1.1	✓*M* $\frac{43\,500 + 33\,640 + \cdots \ldots R29\,170 + R28\,140}{8}$ $= \frac{268\,054}{8}$ ✓*M* = R33 506,75 ✓C*A*	1 M adding to get sum total 1 M dividing by 8 1 CA answer (3)	D2
5.1.2	Modal amount = None✓✓*A*	2 A correct answer (2)	D2
5.1.3	✓*M* Range = R46 500 – R 29 460 = R17 040 ✓*A*	1 MA subtracting 1A correct answer (2)	D1
5.1.4	R43 500; R38 160; R37 200; R33 640; R32 534; R29 170; R28 140; R25 710 ✓✓*A*	2 MA arranging (2)	D1
5.1.5	R29 140 ✓*RT* University of Johannesburg✓*RT*	2 RT reading from table (2)	D1
5.1.6	Thirty nine thousand, one hundred and fifty rands. ✓✓*MA*	2 MA answer correctly written in words **1 Mark penalty for not writing rands** (2)	D1
5.1.7	R29 140, R33 164, R34 720, R38 600, R39 170, R40 700, R42 010, R50 000 Median= $\frac{R38\,600 + R39\,170}{2}$ ✓*M* $= \frac{R77\,770}{2}$ = R38 885 ✓*A*	1M adding correct values and divide by 2 1A R38 885 **Answer only full marks** (2)	D1
5.1.8	✓*M* IQR= R40 668 – R32 135 = R8 533 ✓C*A*	1 M subtraction 1 CA answer (2)	D2
5.1.9	Numerical data ✓*A* Numerical data consists of numbers, whereas categorical data does not use numbers and instead groups data into distinct sets. ✓*J* **OR** Numerical data ✓*A* Values can be measured, like time, height, amounts and can be placed in ascending or descending order. ✓*J*	1 A correct answer 1 J reason (2)	D2

Q	ANSWER	EXPLANATION	LEVEL
5.2	 1 M for two correct bars 4 marks total ✓✓ ✓✓*M* ***Penalise 2 marks if histogram is drawn*** ***No marks if line graph is drawn*** (4)		D2
5.3	Median ✓✓*A* **OR** 50^{th} percentile **OR** Middle value	2 A correct answer (2)	D1
5.4	Examples of categorical data are: Gender; race; age groups; types of animals; favourite movies; brand of cellphones, etc. ✓✓*A*	2 A any correct example (2)	D1
			[27]
		TOTAL:	**150**