GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2022

MARKING GUIDELINES

MATHEMATICAL LITERACY (PAPER 1) (10601)

11 pages

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification/Reason/Explain/Conclusion
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
AO	Answer only – award full marks
MCA	Method with consistent accuracy

KEY TO TOPIC SYMBOLS:

F = Finance; DH = Data Handling; P = Probability

QUESTION 1 [AO = award full marks]

Q	ANSWER	EXPLANATION	LEVEL
1.1			
1.1.1	= R29 373,23 - R1 250 ✓MA = R28 123,23 ✓A	1MA subtraction of correct values 1A correct answer (2)	F1
1.1.2	= R54 708,48 - R22 186,23 ✓ MA = R32 522,25✓A	1MA correct values 1A correct answer (2)	F1
1.1.3	26 935,48 Twenty-six thousand nine hundred and thirty-five rand and forty-eight cents ✓✓ A	2A correct answer (2)	F1
1.1.4	R21,75 ✓✓A	2A correct answer (2)	F1
1.1.5	30 days✓✓ A	2A correct answer (2)	F1
1.1.6	Debit order - you have given a 3rd party permission to take an agreed amount of money out of your account every month to pay for a service.✓✓ D (Accept any logical/sensible answer.)	2D definition of debit order (2)	F1
1.1.7	= R26 935,48 + R2 450 ✓ MA✓ RT = R29 385,48	1 MA adding correct amounts 1RT correct values (2)	F1
1.1.8	Capitec Bank ✓✓ A	2A correct answer (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
1.2			
1.2.1	*Continuous data* consists only of decimal values. ✓A **OR** *Continuous data* does not consist of only whole numbers. **OR** *Continuous data* is data that can be measured on an infinite scale. It can take any value between two numbers, no matter how small. The measure can be virtually any value on the scale. **AND** *Discrete data* consists of whole numbers only. ✓A Discrete data is countable, is a count that involves integers – only a limited number of values are possible.	1A continuous data **AND** 1A discrete data **Please Note:** **No marks awarded if learner states that continuous data continues.** (2)	D1
1.2.2	No mode/none ✓✓ A	2A answer (2)	D1
1.2.3	Difference: 17,3% - 6,1% ✓ MA = 11,2% ✓ A	1MA correct values 1A correct answer (2)	D1
1.2.4	44,9% ✓✓ RG	2RG reading from graph (2)	D1
1.2.5	Cape Town ✓✓A	2A correct answer (2)	D1
1.2.6	62,8% ✓✓ RG	2RG reading from graph (2)	D1
1.2.7	44,9; 21,4; 17,3; 13,8; 2,6 ✓✓A	2A correct arrangement (2)	D1
			[30]

QUESTION 2

Q	ANSWER	EXPLANATION	LEVEL
2.1			
2.1.1	✓RT ✓M R11 489,79 × 100 ÷ 30 = R38 299,30 ✓CA ≈ R40 000 ✓R	1RT reading from table 1M multiplying by 100 and dividing by 30 1CA answer 1R rounding-off (4)	F2
2.1.2	A = R6 037,50 + R29 280 + R20 432,50 ✓M = R55 750 ✓CA	1M adding all values 1CA answer (2)	F2
2.1.3	= R1 450 000 + R55 750✓M = R1 505 750✓CA	**CA from 2.1.2** 1M adding all values 1CA answer (2)	F1
2.1.4 (a)	✓C R69 × 12 × 20 ✓M = R16 560 ✓A **OR** 12 × 20 = 240 ✓C R69 × 240✓M = R 16 560✓A	1C converting (12 × 20) 1M for multiplying 1A answer **OR** 1C converting to months 1M for multiplying correct values 1A answer (3)	F2
(b)	He would be losing R16 560. He will be paying an additional R16 560. His monthly repayment would increase by R69,00. His monthly repayment would be R11 558,79. ✓✓O	**CA from Q 2.1.4 (a)** 2O Opinion **Accept any reasonable or valid answer.** (2)	F4

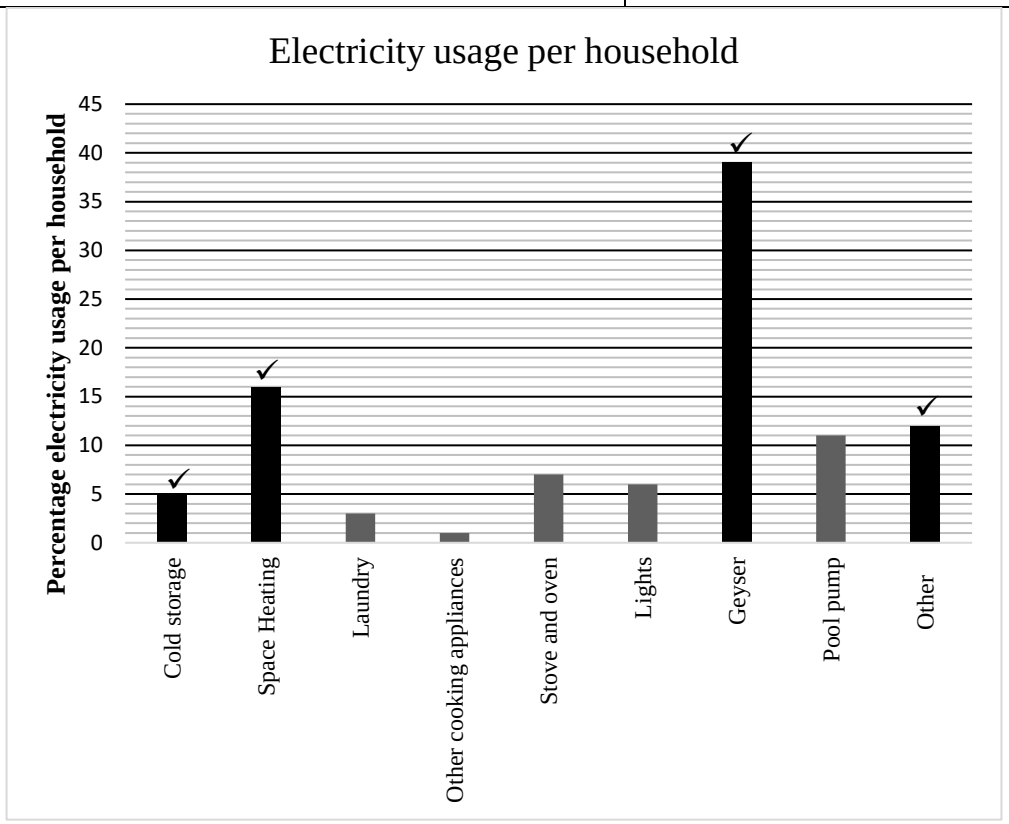
Q	ANSWER	EXPLANATION	LEVEL
2.1.5	**FNB** ✓RT ✓M $(R11\,577{,}17 \times 240) + (R69 \times 240)$ $= R2\,795\,080{,}80$ total payment ✓CA $R2\,795\,080{,}80 - R1\,520\,172$ ✓MA $= R1\,274\,908{,}80$ interest✓CA **INVESTEC** $R11\,489{,}79 \times 12 \times 20$ $= R2\,757\,549{,}60$ total payment ✓A $R2\,757\,549{,}60 - R1\,505\,750$ $= R1\,251\,799{,}60$ interest✓CA Saving (Difference in Rands) $R1\,274\,908{,}80 - R1\,251\,799{,}60$✓MCA $= R23\,109{,}20$ ✓CA	1RT reading correct values from table 1M addition 1CA total payment FNB 1MA subtraction 1CA interest FNB 1A total payment Investec 1CA interest Investec 1MCA subtracting to calculate savings 1CA for answer (9)	F3
2.2			
2.2.1 (a)	The Australian Dollar is the weakest.✓ ✓A	2A answer (2)	F4
2.2.1 (b)	It would be the cheapest country to go to as you would get more dollars for your rands. ✓✓J	2J for reason **Any reasonable or valid answer can be accepted.** (2)	F4
2.2.2	$R18{,}06 \times 1\,200$ ✓MA $= R21\,672$ ✓A	1MA multiplying correct values 1A answer (2)	F1
2.2.3	Exchange fee ✓M ✓M $= R125 + (2{,}28\% \times R21\,672)$ $\approx R619{,}12$ ✓CA No, she was not charged the correct amount.✓J	**CA from Q 2.2.2** 2M adding and multiplying 1CA answer 1J justification **NPR** (4)	F3

Q	ANSWER	EXPLANATION	LEVEL
2.2.4	✓✓J Inflation Interest rates Unstable conditions in a country's economy Rising petrol prices, crude oil prices, transport costs	2J reason **Accept any reasonable or valid answer.** (2)	F4
2.3			
2.3.1	R200✓✓A	2A correct value (2)	F1
2.3.2	✓MA ✓M $(50 \times R0,69) + (299,9 \times R0,81)$ $= R34,50 + R242,919$ ✓M $= R277,419$ $\approx R277,42$ ✓CA	1MA multiplying by correct values (bracket 1) 1M multiplying with the correct values (bracket 2) 1M adding values 1CA final answer (4)	F3
2.3.3	Amount above: $R277,42 \div 3 \times 2$ $= R184,95$ ✓CA $349,9 \div 3 \times 2 = 233,266$ $\approx 233,27$ Kwh ✓A consumption for 2 people $(50 \times R0,69) + (183,27 \times R0,81)$ ✓M $= R34,50 + R148,45$ ✓M $= R182,948$ $= R182,95$ ✓CA **OR** $= R277,42 \times \frac{2}{3}$ $= R184,95$ ✓CA $= 349,9$ kwh $\times \frac{2}{3}$ $= 233,27$ Kwh ✓A Her assumption is not correct, BECAUSE: She cannot just divide the cost because the electricity tariff is a step tariff.✓ J There is a difference between the actual amount and estimated amount.	**(CA from Q 2.3.2)** 1CA for $\frac{2}{3}$ of amount in Q 2.3.2 1A for $\frac{2}{3}$ of units 1M multiplying 1M adding values 1CA answer 1J explanation (6)	F4
			[46]

QUESTION 3

Q	ANSWER	EXPLANATION	LEVEL
3.1			
3.1.1	Facebook ✓✓RG	2RG reading from the graph (2)	D1
3.1.2	Range = Maximum value – Minimum value = 74% – 30% ✓ MA = 44% ✓ A	1MA subtracting correct values 1A answer (2)	D2
3.1.3	Histogram ✓✓ A (Accept: Line graph)	2A answer (2)	D1
3.1.4	Median: 30%, 35%, 42%, 63%, 72%, 74% ✓ M Median = $\frac{42\%+63\%}{2}$ ✓ M = $\frac{105\%}{2}$ = 52,5% ✓ CA	1M arranging data 1M concept of median 1CA answer (3)	D2
3.1.5	Yes ✓ A It is disruptive during study time ✓ J **OR** It can be distracting during class time. **OR** No It is part of evolution. **OR** It can be a great platform to enable research and provide learners with additional information.	1A answer (Yes/No) 1J reasoning **Reasoning must be valid and sensible.** (2)	D4

Q	ANSWER	EXPLANATION	LEVEL
3.2			
3.2.1	65 + years ✓✓ 2RG **OR** 65 years and older	2RG reading from graph (2)	D1
3.2.2	Because they interact more with their friends. ✓✓ O **OR** Because they have to do research for projects. **OR** Because they use the internet to get additional resources for study purposes.	2O Opinion **Accept any reasonable and valid answer.** (2)	D4
3.2.3	✓ MA Mean = $\frac{37\% + 64\% + 78\% + 88\%}{4}$ = $\frac{267\%}{4}$ = 66,75% ✓ CA	1MA correct concept of mean calculation 1CA answer (2)	D2
3.3			
3.3.1	Other cooking appliances ✓✓ RG	2RG reading from graph (2)	D1
3.3.2	✓ M 1%, 3%, 5%, 6%, **7%**, 11%, 12%, 16%, 39% Quartile 1 = $\frac{3\%+5\%}{2}$ Quartile 1 = 4% ✓ A Quartile 3 = $\frac{12\% + 16\%}{2}$ Quartile 3 = 14% ✓ A Interquartile range = Q3 – Q1 = 14% – 4% ✓ M = 10% ✓ CA	1M arranging values 1A Q1 1A Q3 1M concept of IQR 1CA answer (5)	D3
3.3.3	Switch the geyser off when not in use. ✓✓ O Switch off lights if not needed. ✓✓ O Unplug any equipment that is not in use. Only use space heating when absolutely necessary.	2O opinion 2O opinion **Accept any valid and reasonable answer.** (4)	D4

Q	ANSWER	EXPLANATION	LEVEL
3.3.4	Probability = $\frac{2}{9}$ ✓A✓A = 0,22 ✓ CA	1A numerator 1A denominator 1CA final answer (3)	P2
3.3.5	 **Elements/Objects using electricity** 1A Cold storage 1A Space heating 1A Geyser 1A Other (4)	D3
			[35]

QUESTION 4

Q	ANSWER	EXPLANATION	LEVEL
4.1			
4.1.1	Difference = 63 343 – 59 234 ✓ MA = 4 109 ✓ A	1MA correct values 1A answer (2)	F1
4.1.2	Chicago East ✓✓ RG	2RG reading from graph (2)	F1
4.1.3	Less buying power. People need to cut down on certain items. ✓✓J	2J explaining (2)	F1
4.1.4	Yes✓O When your salary increases so does the amount you pay in tax.✓✓J	1O opinion 2J explanation (3)	F4
4.1.5	✓ RT ✓M $\frac{49\,213-48\,021}{48\,021} \times 100$ ✓F $= 2{,}48\%$ ✓CA	1RT reading from the table 1M concept of % 1F correct formula 1CA answer **NPR** (4)	F2
4.2			
4.2.1	180 + 20 = 200 ✓ A $200 \times \frac{8}{100}$ ✓ M = 16 people ✓ CA	1A total of 200 1M multiply with 8% 1CA answer (3)	D2
4.2.2	Bi-modal : 8% ✓ A and 14% ✓ A	2A one mark for each correct value (2)	D2
4.2.3	Probability = $\frac{1}{7}$ ✓✓ A	2A answer (2)	P2
4.2.4	Probability = $\frac{27}{100}$ or 27% or 0,27 ✓✓ A	2A answer (2)	P2
4.2.5	IQR = Q3 – Q1 10% = 18% – Q1 ✓ SF Q1 = 18% – 10% ✓ M = 8% ✓ CA	1SF correct substitution 1M changing subject of the formula 1CA Quartile 1 (3)	D2
4.2.6	Action movies : Horror movies 18% : 11% ✓ MA 1% : 0,61% ✓✓ S **OR** 0,18 : 0,11 1: 0,61	1MA ratio in correct order 2S simplification (3)	D2

Q	ANSWER	EXPLANATION	LEVEL
4.3			
4.3.1	Yes ✓A He does not have to pay tax ✓J	1A correct answer 1J explanation (2)	F1
4.3.2	A person's age✓✓A	2A correct answer (2)	F1
4.3.3	Yearly taxable income R55 250 × 12 = R663 000 ✓A R163 335 + 39%(663 000 − 613 600) ✓SF = R163 335 + R19266 = R182 601 ✓CA less rebates R182 601 − R15 714 − R8 613 ✓MA = R158 274 ✓CA $= \frac{\mathbf{R158\ 274}}{\mathbf{R663\ 000}} \times 100$ ✓MA = 23,87% ∴ 23,87% < 25% ∴ **His claim is not correct** ✓J **OR** Quarter of annual salary $\frac{1}{4} \times 663\ 000$ = R165 750 ✓A He pays less than $\frac{1}{4}$ of his annual taxable income. He pays R158 274 tax. $\frac{1}{4}$ of his annual salary is R165 750. He pays less tax than he claims. ✓J	1A correct annual taxable income 1SF substitution into formula 1CA tax payable before rebates 1MA subtracting both rebates 1CA annual tax payable 1A concept of ¼ (25%) 1J justification (7)	F4
			[39]
		TOTAL:	**150**