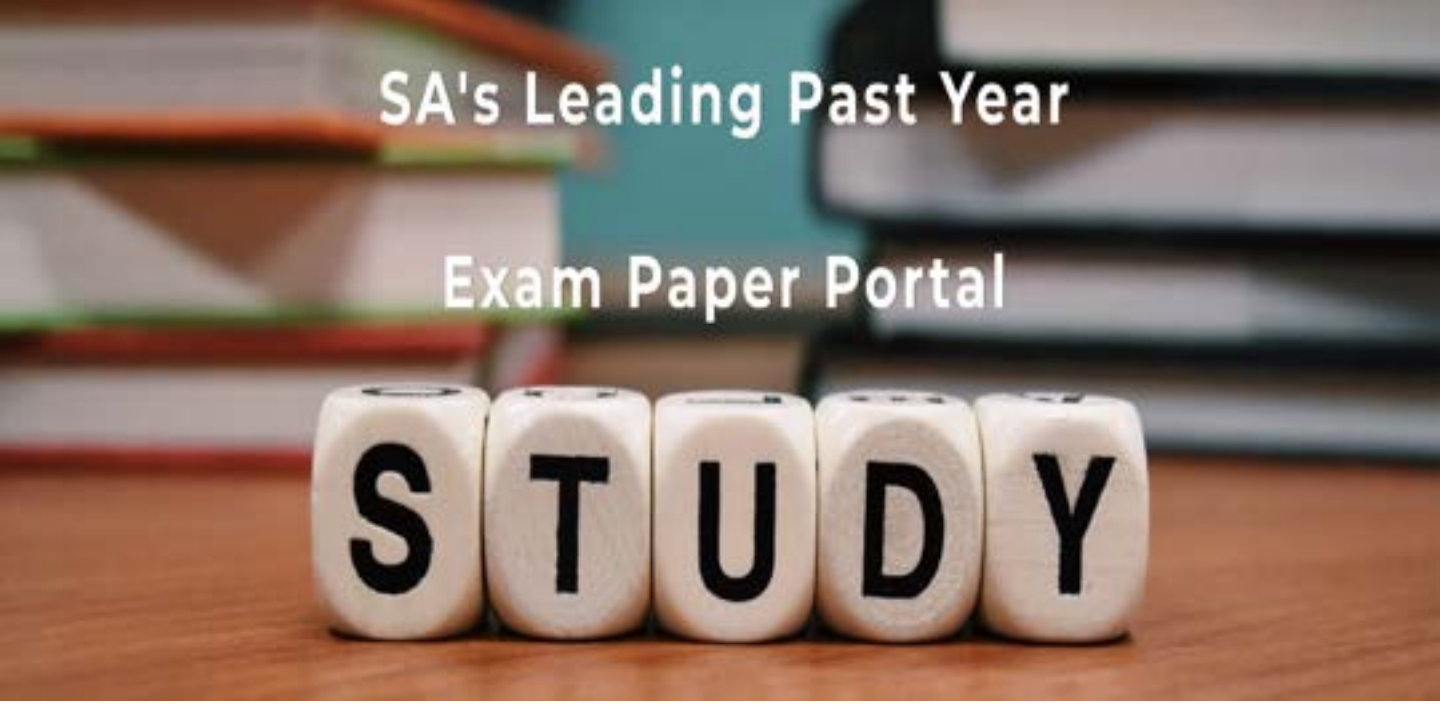

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PREPARATORY EXAMINATION

2022

MARKING GUIDELINES

MATHEMATICAL LITERACY (PAPER 2) (10602)

11 pages

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 SYMBOLS:

M = Measurement; MP = Maps, Plans and other representations;
P = Probability

QUESTION 1				
Q	**Answer**	**Explanation**	**Marks**	**Topic Level**
1.1.1	Egypt ✓✓ RD	2A correct answer	(2)	MP L1
1.1.2	Asia and Africa ✓✓ RD	1A correct answer Asia 1A correct answer Africa	(2)	MP L1
1.1.3	Red Sea ✓✓ RD	2A correct answer	(2)	MP L1
1.1.4	193 km ✓✓ A	2A correct answer	(2)	MP L1
1.1.5	Ships can move in both directions in the canal and they can pass slower ships. ✓✓J **OR** The Suez Canal offers a shorter route for major ships carrying cargo around the world. ✓✓J	2J correct answer	(2)	MP L2
1.1.6	Spices, consumer goods, fresh fish. ✓✓A (Accept any TWO reasonable items.)	1A 1st correct answer 1A 2nd correct answer	(2)	MP L2
1.1.7	To allow ships to pass each other. ✓✓J (Any feasible answer.)	2J explanation	(2)	MP L1
1.1.8	10 years ✓✓A **OR** 11 years ✓✓A	2A correct answer	(2)	MP L1
1.2.1	North ✓✓A **OR** North-West ✓✓A	2A correct answer	(2)	MP L1
1.2.2	Suez ✓✓A	2A correct answer	(2)	MP L1
1.2.3	$\frac{1\,300\,ft}{1\,ft} \times 0{,}3048\,m$ ✓ MA = 396,24 m ✓A	1MA multiplying correct values 1A converted answer **NPR**	(2)	M L2

Q	Answer	Explanation	Marks	Topic Level
1.3.1	Total time = 15 minutes ÷ 60 ✓ MA = 0,25 hours ✓ CA **OR** $= \frac{1}{4}\ hours$	1MA dividing by 60 1CA correct time **AO**	(2)	M L2
1.3.2	Weight = 200 g ÷ 1 000 ✓ MA = 0,2 kg ✓A	1MA dividing by 1 000 1A correct weight in kg **NPU** **AO**	(2)	M L1
1.3.3	castor sugar : brandy 60 ml : 30 ml ✓A 2 : 1 ✓CA	1A both correct values and correct ratio order 1CA simplification **AO**	(2)	M L1
1.3.4	No. of grams = $\frac{2}{3}$ × 50 g ✓M = 33,33 g ✓CA	1M multiplying 50 g by $\frac{2}{3}$ 1CA number of grams **NPR**	(2)	M L1
1.3.5	✓ M Finishing time =11:55 + 15 minutes + 2 hours = 14:10 ✓CA **OR** = 2:10 p.m. ✓CA	1M adding time 1CA time	(2)	M L2
			[32]	

QUESTION 2				
Q	**Answer**	**Explanation**	**Marks**	**Topic Level**
2.1.1	156 +56 = 212 people ✓A P(crew) = $\frac{56}{212} \times 100\%$ ✓ MA = 26,4% ✓CA	1A correct answer 1MA correct fraction multiply by 100% 1CA correct answer **NPR**	(3)	P TL2
2.1.2	$Total\ passengers\ on\ the\ ship$ $= 48 + 12 + 56 + 23$ = 139 ✓A P(Russian male OR South African female) = P(Rm) + P(SAf) = $\frac{8}{139}$ ✓ A + $\frac{13}{139}$ ✓ MA = $\frac{21}{139}$ ✓CA	1A correct total of passengers 1A correct probability values 1MA addition 1CA simplification	(4)	P TL3
2.2.1	Jamestown ✓✓A	2A correct answer	(2)	MP TL1
2.2.2	A ✓✓A	2A correct answer **Accept South of Longwood**	(2)	MP TL1
2.2.3	Bar/Line scale ✓✓A	2A correct answer	(2)	MP TL1
2.2.4	Scale = 3,2 cm : 5 miles Measured distance = 2,8 cm ✓ M **(accept 2,6 cm to 3,1 cm)** $\frac{2,8\ cm}{3,2\ cm} \times 5\ miles$ ✓ MA = 4,375 miles $\frac{4,375\ miles}{1\ mile} \times 1,60934\ km$ ✓ C = 7,04 km ✓ CA	1M distance between towns 1MA correct fraction multiply by 5 1C conversion 1CA correct answer	(4)	MP TL3
2.2.5	More facilities. Greater population. ✓✓ J (Accept any other reasonable answer.)	2J explanation	(2)	MP TL2

Q	Answer	Explanation	Marks	Topic Level
2.2.6	11 cm **(Accept from 10 cm to 13 cm.)**	2RT correct answer	(2)	MP TL1
2.2.7	$\frac{11\ cm}{3{,}2\ cm} \times 5\ miles$ ✓ MA = 17,1875 miles 17,1875 × 1,60934 km ✓ C = 27,66 km Area = length × breadth = 10 km × 27,66 km ✓ MA = 276, 6 km^2 ✓ CA	**CA from 2.2.3 (scale) and 2.2.6** 1MA correct fraction and multiply by 5 1C conversion from miles to km 1MA correct calculation in the area formula 1CA correct answer **NPR**	(4)	M TL3
2.2.8	Population density = $\frac{4\ 534\ people}{276{,}6\ km^2}$ ✓✓ MA = 16,39 people per km^2 ✓ CA	**CA from 2.2.6** 2MA dividing correct numerator by correct denominator 1CA answer **NPR**	(3)	M TL2
2.2.9	Fast food outlet, clothing, dairy and dairy products, seafood businesses (seafood restaurants/seafood export) ✓✓ J (Accept any other reasonable business idea.)	2J answer	(2)	MP TL2
			[30]	

QUESTION 3				
Q	**Answer**	**Explanation**	**Marks**	**Topic Level**
3.1	Circumference is the total distance around the outside of a shape. ✓✓ A	2A correct definition of circumference	(2)	M TL1
3.2	40 ft x 0,3048 m ✓ M = 12,192 m ✓ A	1M multiplying with correct conversion value 1A answer	(2)	M TL1
3.3	Dimensions of section B L = 40 ft × *0,3048 m* = 12,192 m W = 25 ft × *0,3048 m* = 7,62 m ✓ C H = 6 ft × *0,3048 m* = 1,8288 m ✓ C Volume of section B = 12,192 m × 7,62 m x 1,8288 m ✓ SF = 169,90 m³ ✓ A V = 169,90 m³ × 1 000 = 169 900 ℓ ÷ 2 ✓ M = 84 950 ℓ ✓ CA Total volume = 84 951 ℓ + 84 950 ℓ ✓ M = 169 901 ℓ Her claim is correct ✓ O	 2C conversion to m 1SF substituting correct values 1A value of 169,90 m^3 1M dividing by 2 1CA answer 1M addition 1O conclusion	(8)	M TL4
3.4	B ✓✓A	2A correct answer **Accept** **A = π × 2,5²× height**	(2)	M TL1

Q	Answer	Explanation	Marks	Topic Level
3.5	65 000 ℓ ÷ 1000 = 65 m^3 ✓ C V = 3,142 x 2,5 x 2,5 x h ✓ SF 65 m^3 = 19,6375 x h $h = \frac{65\ m^3}{19{,}6375}$ ✓ M Height = 3,309994 m ✓ CA Height = Depth = 3,31 m ✓ R	1C correct conversion 1SF correct values 1M dividing values 1CA height 1R correct rounding	(5)	M TL2
3.6	92% x 65 000 ℓ = 59 800 ℓ ✓ A = 59,8 m^3 $\frac{59{,}8\ m^3}{1{,}5\ m^3}$ ✓ MA 39,866 minutes = 40 minutes ✓ M 7:30 + 40 minutes = 8:10 a.m. ✓ S Her claim is not correct. ✓ O	**CA from 3.1.3** 1A correct value 1MA conversion 1M time 1S final time 1O conclusion	(5)	M TL4
3.7	The design or the shape of the swimming pool could have influenced her to choose pool A. ✓✓ O (Accept any other reasonable answer.)	2O reason	(2)	M TL4
3.8	Temperature change from 19 °C to 25 °C 19 × 1,8 + 32 ✓ C = 66,2 °F ✓ A 25 × 1,8 + 32 = 77 °F ✓ CA Temperature change 77 °F – 66,2 °F ✓ M = 10,8 °F ✓ CA	1C conversion 1A answer 1CA answer 1M subtraction 1CA correct temperature	(5)	M TL3
			[31]	

QUESTION 4				
Q	**Answer**	**Explanation**	**Marks**	**Topic Level**
4.1.1	3 doors ✓✓ RG	2RG reading from plan	(2)	MP TL2
4.1.2	Measurement = 90 mm ✓ A 90 mm × 100 ✓ MA = 9 000 mm ✓ CA = $\frac{9\ 000}{1\ 000}$ ✓ MA = 9 m ✓ CA	1A measured distance 1MA using given scale 1CA simplification 1MA dividing by 1 000 1CA simplification **Accept 84 mm – 92 mm**	(5)	MP TL2
4.1.3	Area = 322,36 ft² 100 cm² = 0,107639 ft² $\frac{322,36}{0,107639}$ x 100 cm^2 ✓ C = 299 482,53 cm² ✓ CA = $\frac{299\ 482,53}{100^2}$ ✓ MA = 29,94825296 m² ≈ 29,95 m² ✓ CA	1C conversion 1CA simplification 1MA dividing by (100)²/10 000 1CA simplification	(4)	M TL3
4.1.4	Yes ✓ A There are no walls between the dining area, kitchen and living area. ✓ O	1A yes 1O explanation	(2)	MP TL4
4.2.1	1 foot = 30,48 cm 4 × 30,48 cm ✓ C = 121,92 cm ✓ CA r = $\frac{121,92\ cm}{2}$ ✓ M = 60,96 cm ✓ CA	1C conversion 1CA simplification 1M dividing by 2 1CA simplification	(4)	M TL3

Q	Answer	Explanation	Marks	Topic Level
4.2.2	H = 12 × 2,54 cm = 30,48 cm ✓ C Volume = 3,142 × (60,96)² × 30,48 cm ✓ SF ✓ S Volume = 3,142 × 3 716,1216 cm² × 30,48 cm = 355 886,13 cm^3 ✓ CA	**CA from Question 4.2.1** 1C conversion 1SF substitution of correct values 1S simplification 1CA simplification **NPR**	(4)	M TL3
4.2.3	A ✓✓ A Accept Circumference of circle = π × diameter	1A correct answer	(2)	M TL2
4.2.4	Circumference of circle = π × diameter ✓ CA = 3,142 × (60,96 cm × 2) ✓ SF = 383,072640 = 383,073 ✓ R	**1CA from Question 4.2.2 and 4.2.3** 1SF substitution into formula 1R correct answer	(3)	M TL2
4.2.5	3 × 5 gallon = 15 gallon ✓ MA 15 × 3,7854 ℓ ✓ C = 56,781 ℓ 20ℓ × 2,75 = 56 ℓ ✓ A 56,781 ℓ - 56 ℓ = 0,781 ℓ ✓ CA **OR** 5 × 3,7854 ℓ = 18,927 ℓ ✓ C 18,927 ℓ × 3 ✓ MA = 56,781 ℓ 20ℓ × 2,75 = 56 ℓ ✓ A 56,781 ℓ - 56 ℓ = 0,781 ℓ ✓ CA No, He is not correct. There will be a shortage of 0,781 ℓ if he only uses two and three-quarter 20 ℓ buckets. ✓ J	1MA × 3 1C conversion 1A number of litres 1CA simplification **OR** 1C conversion 1MA × 3 1A number of litres 1CA simplification 1J reason	(5)	M TL4
			[31]	

QUESTION 5				
Q	**Solution**	**Explanation**	**Marks**	**Topic Level**
5.1.1	Body Mass Index ✓✓ A	2A correct answer	(2)	M TL1
5.1.2	BMI = 27 kg/m^2 ✓ RD	2RD Reading from the graph	(2)	M TL2
5.1.3	✓ SF $27\ kg/m^2 = \frac{Weight}{(1{,}8\ m)^2}$ ✓ A $Weight = 27{,}8 \times 3{,}24$ ✓ M $= 87{,}48\ kg$ ✓ CA	1SF substituting BMI 1A correct height 1M multiplying BMI with height 1CA weight	(4)	M TL3
5.1.4	$BMI = \frac{48\ kg}{(1{,}3\ m)^2}$ ✓ SF $BMI = 28{,}4\ kg/m^2$ ✓ S	1SF correct substitution 1S simplification	(2)	M TL2
5.2.1	778 km – 460 km = 318 km ✓ CA **OR** ✓ MA 544 km – 226 km ✓ MA = 318 km ✓ CA	1MA subtracting correct km's 1CA total km's **AO**	(2)	MP TL2
5.2.2	$P(letter\ T) = \frac{2}{9}$ ✓ A ✓ A	1A numerator 1A denominator	(2)	P L2
5.2.3	45 min + 15 min + 15 min ✓ A = 75 minutes = 1 hour 15 min stops 9 hours 15 min – 1 hour 15 min = 8 hours travelling time ✓ CA Average speed = $\frac{999\ km}{8\ h}$ ✓ SF = 124,875 ≈ 125 km/h ✓ R 125 km/h – 120 km/h = 5 km/h ✓ CA He did not keep to the maximum speed limit./He drove at 5 km/h above the speed limit. ✓ J	1A calculate stops 1CA travelling time 1SF kilometres and time 1R average speed 1CA difference in speed 1J conclusion	(6)	MP L4

Q	Solution	Explanation	Marks	Topic Level
5.2.4	(a) 5,9 ℓ : 100 km	**CA km's in 5.2.3**		MP L4
	$\frac{45 \text{ litres}}{5,9 \text{ litres}}$ ✓ MA	1MA divide by 5,9 ℓ		
	= 7,627188644 ✓ CA	1CA answer		
	$= 7,627188644 \times 100$ km ✓ M = 762 km ✓ CA	1M multiply by 100 km 1CA no. of km's		
	999 km – 762 km = 237 km ✓ CA Yes, he had to refuel. ✓ O	1CA difference 1O conclusion		
	OR	**OR**		
	$\frac{999 \text{ km}}{100 \text{ km}}$ ✓ M	1M divide by 100 km		
	$= 9,99$ ✓ CA	1CA answer		
	9,99 × 5,9 ℓ ✓ MA = 58,941 ℓ ✓ CA	1MA multiply by 5,9 ℓ 1CA litres used on trip		
	58,941 ℓ – 45 ℓ = 13,941 ℓ ✓ CA Yes, he had to refuel. ✓ O	1CA difference 1O conclusion		
	OR	**OR**		
	999 km $\times \frac{5,9\ l}{100 \text{ km}}$ ✓ MA	1MA multiply by 5,9 ℓ and divide by 100		
	= 5 894,1 ℓ ✓ CA	1CA answer		
	$\frac{5\ 894,1 \text{ litres}}{100}$ ✓ M	1M divide by 100 km		
	= 58,941 ℓ ✓ CA	1CA litres used on trip		
	58,941 ℓ – 45 ℓ = 13,941 ℓ ✓ CA	1CA difference		
	Yes, he had to refuel. ✓ O	1O conclusion	(6)	
			[26]	
		TOTAL:	**150**	