MATHEMATICAL LITERACY: PAPER II

MARKING GUIDELINES

Time: 3 hours   150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

QUESTION 1

1.1   1.1.1 $\dfrac{450\ 000\ 000\ \checkmark^a}{3\ 400\ 000\ 000\ \checkmark^m} = 0,1323$

1 ZAR = 0,13 USD $\checkmark^{ca}$ (3)

1.1.2 $(3 \times 60)\ \checkmark^a + (1 \times 30)\ \checkmark^a + (1 \times 55)\ \checkmark^a = R265\ \checkmark^{ca}$ (4)

1.1.3 $265\ \checkmark^{ca} \times 0,08\ \checkmark^{ma} = \$21,20\ \checkmark^{ca}\ \checkmark^r$ (4)

1.1.4   2006: 1 ZAR = 0,13 USD
2018: 1 ZAR = 0,08 USD

$\dfrac{0,13\ \overset{\checkmark^m}{-}\ 0,08\ \checkmark^{ca}}{0,13\ \checkmark^{ca}} \times 100 = 38,46\%\ \checkmark^{ca}$ (4)

1.2 $\dfrac{1}{4} \times 85\ 000\ \checkmark^m = 21\ 250\ \checkmark^a$
$21\ 250 \overset{\checkmark^{ma}}{\times}\ 90 = R1\ 912\ 500\ \checkmark^{ca}$ (4)

OR

$\dfrac{3}{4} \times 85\ 000 = 63\ 750\ \checkmark^a$

$85\ 000 - 63\ 750\checkmark^m = 21\ 250 \times R90\ \checkmark^{ma} = R\ 1\ 912\ 500\checkmark^{ca}$

1.3   1.3.1   (a) $0,7\ \checkmark^a$
(b) $0,4\ \checkmark^a$
(c) $0,2\ \checkmark^a$ OR (c) 0,8
(d) $0,8\ \checkmark^a$ (d) 0,2
(e)   rain $\checkmark^a$ (e) no rain
(f)   no rain $\checkmark^a$ (f) rain   (6)

1.3.2 $0,7\ \checkmark^{ca} \times 0,8\ \checkmark^m\checkmark^{ca} \times 100 = 56\%\ \checkmark^{ca}$ (4)

1.4 $320 \div 40\ \checkmark^a = 8\ \checkmark^{ma}$
$280 \div 25\ \checkmark^a = 11,2\ \checkmark^{ma} \approx 11\checkmark^r$
$11 \times 8 = 88$ fields $\checkmark^{ca}$

OR
$320 \div 25\ \checkmark^a = 12,8\ \checkmark^{ma} \approx 12\checkmark^r$
$280 \div 40\ \checkmark^a = 7\ \checkmark^{ma}$
$12 \times 7 = 84$ fields $\checkmark^{ca}$ (6)

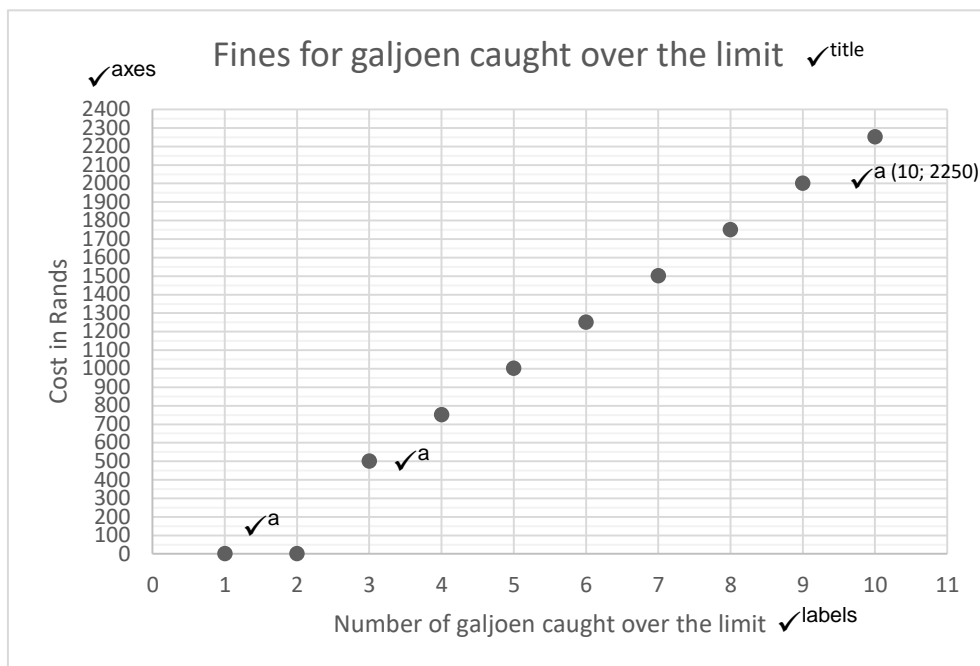**[35]**

QUESTION 2

2.1   Anchovies, ✓a because there is no bag limit. ✓a   (2)

2.2   2.2.1   C ✓m = 500 ✓a + ✓m (n – 1) ✓a 250 ✓a   (5)

2.2.2

Fines for galjoen caught over the limit ✓title

✓axes
Cost in Rands (y-axis, 0 to 2400 in increments of 100)
✓a (10; 2250)
✓a (increments)
✓a (dots)
✓a
✓a
Number of galjoen caught over the limit ✓labels (x-axis, 0 to 11)

(8)

2.2.3   1 500 ✓✓ca   (2)

2.2.4   7 × 240 ✓m = R1 680 ✓a
        He will have R180 left over. ✓ca   (3)

2.3   2.3.1

QUANTITY OF FISH CAUGHT ANNUALLY		
	OFFICIAL	**ACTUAL**
1996	86 000 000	130 000 000
1997	84 800 000✓a	129 620 000 ✓a
1998	83 600 000	129 240 000
1999	82 400 000	128 860 000
2000	81 200 000✓ca	128 480 000✓ca

Official versus Actual number of fish caught

✓ca
✓a
✓a

FISH CAUGHT (MILLIONS OF TONS) (y-axis, 0 to 140)
YEARS: 1996, 1997, 1998, 1999, 2000
✓✓✓compound bar graph
■ Official ■ Actual ✓legend
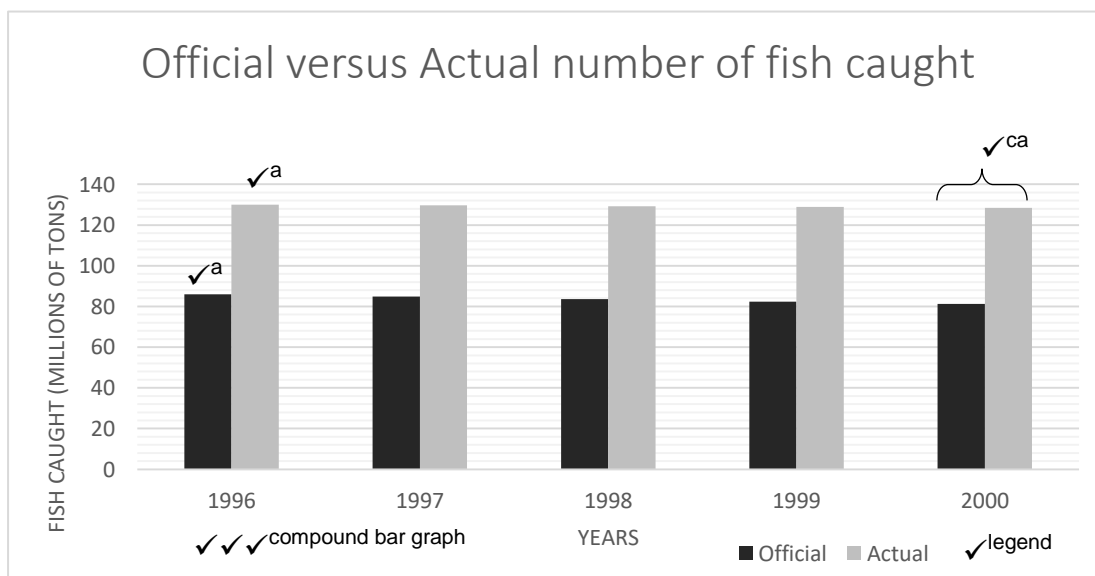
(11)

2.3.2 (a) Range = 95 – 87 $\checkmark^m$ = 8 million tons $\checkmark^a$ (2)

(b) Median = 90 million tons $\checkmark^m\checkmark^a$ (2)

(c) Mode = 90 million tons $\checkmark\checkmark^a$ (2)

(d) Mean = $\dfrac{999}{11}$ $\checkmark^{ma}$ $\overset{\checkmark^a}{=}$ 90,8 $\approx$ 91 million tons $\checkmark^{ca}$

OR 90 800 000 OR 91 000 000 (3)

2.4.1 1,5 cm $\checkmark^a$ = 100 km (accept 1,4 – 1,6 cm)
1,5 cm = 10 000 000 cm $\checkmark^{m(conv)}$ $\checkmark^{m(\div 1,5)}$
1 : 6 666 666 $\checkmark^{ca}$ (accept 7 142 857 – 6 250 000) (4)

2.4.2 4,2 cm $\checkmark^a$ (accept 4 – 4,3 cm)
4,2 × 6 666 666 $\checkmark^{cam}$ = 27 999 997cm $\checkmark^{ca}$
(accept 250 – 287) (3)

2.4.3 (a) 279,99 $\checkmark^{ca}$ – $\checkmark^{ma}$ 170 = 109,99 km $\checkmark^{ca}$ (3)

(b) Table more accurate $\checkmark^a$ – Map small scale or table includes actual distance on roads. $\checkmark^{reason}$ OR inaccurate measurement using bar scale. (2)

(c) $\dfrac{170 \text{ km}}{12 \text{ km}/\ell}$ $\checkmark^{ma}$ = 14,16 ℓ $\checkmark^{ca}$

50 × $\dfrac{1}{4}$ = 12,5 ℓ $\checkmark^a$

No he will not make it. $\checkmark^{ca(reason)}$

OR

50 × $\dfrac{1}{4}$ = 12,5 ℓ $\checkmark^a$

12,5 × 12 km/ ℓ $\checkmark^{ma}$ = 150 km $\checkmark^{ca}$
No he will not make it. $\checkmark^{ca(reason)}$ (4)

(d) t = $\dfrac{d}{s}$ $\checkmark^m$ = $\dfrac{170}{80}$ $\overset{\checkmark^{ca}}{\underset{\checkmark^a}{}}$ = 2,125 hours $\checkmark^{ca}$

= 2:07 $\checkmark^{ca}$

OR

2:08 (5)

OR

2hrs:7,5 min **[61]**

QUESTION 3

3.1 Area triangle = $\frac{1}{2}$ (2,5)(3) = 3,75 m^2 ✓a

Area rectangle = 5,5 ✓a × 3 = 16,5 m^2 ✓ca
Area circle = (3,14)(0,15)^2 ✓a = 0,07068 m^2 ✓ca
Total Area = 3,75 + 16,5 − 0,07068 ✓m = 20,18 m^2 ✓ca   (7)

3.2 d = $\frac{0,99}{3,14}$✓m = 0,315 m ✓a

     = 315 mm ✓ca(conversion)
Hole will be too small. ✓ca

OR

Circumference of hole = 2 × 3,14 × (0,3 ÷ 2) ✓a✓m = 0,94m ✓ca
Circumference of tree = 0,99m
∴ Hole is too small ✓ca   (4)

3.3 $\frac{7 \times 3 \,✓a}{0,15 \times 1,2 \,✓a}$✓m = 116,67 ✓ca = 117 strips ✓car

OR
$\frac{7}{0,15} \times \frac{3}{1,2}$ = 117 strips

OR
$\frac{7}{1,2} \times \frac{3}{0,15}$ = 117 strips   (5)

3.4 $\frac{117}{8}$ ✓m = 14,6 ≈ 15 packs ✓car

15 × 159,95 ✓m = R2 398,50 ✓ca ≈ R2 400 ✓r   (5)

3.5 Perimeter = 3,9+ 5,5 + 3 + 5,5 + 2,5 ✓a(values) ✓m = 20,4 m ✓ca   Yes that will
be enough. ✓ca   (4)

3.6 $\frac{1\,000}{230}$✓m = 4,34 ✓a

so 4 bricks in the top and the bottom of the length = 8 bricks

$\frac{1\,000}{110}$✓m = 9 ✓a so 9 bricks in the middle of the length

(9 + 4 + 4) ✓a ✓m × 2 ✓m = 34 bricks ✓ca   (8)

[33]

QUESTION 4

4.1 $\dfrac{1}{10}$ oz × 0,0625 ✓^{m} = $\dfrac{1}{160}$ lbs ✓^{a} or 0,00625

   $\dfrac{1}{160}$ ÷ 0,0022 ✓^{m} = 2,84 g ✓^{ca} (4)

4.2   1 : 10 weight ✓^{a}
   3 800 : 31 600 cost ✓^{a}
   1 : 8,315 ✓^{a}
   Therefore not the same. ✓^{ca}

   OR
   1/10 oz = R3 800 ✓^{a} so 1 oz = R38 000 ✓^{a}
   1 oz = R31 600 ✓^{a} so No ✓^{ca} (4)

4.3   4.3.1 $\dfrac{375 \, ✓^a}{5\,000}$ × 100 ✓^{m} = 7,5% ✓^{ca} (3)

   4.3.2   (a)   (i)   5 575 × 0,115 = R641,12/13 ✓^{a}
               (ii)   5 575 + 641,12 = R6 216,12/13 ✓^{ca}
               (iii)   R6 216,12/13 ✓^{ca}
               (iv)   6 216,12 × 0,115 = R714,85 ✓^{ca}
               (v)   6 216,12 + 714,85 = R6930,97/98 ✓^{ca} (5)

           (b)   7 900 – 6 930,97/98 ✓^{cam} = R 969,03/02 Short ✓^{ca} (2)

4.4 $\dfrac{31\,600}{1,15 \, ✓^{ma}}$ = R27 478,261 ✓^{a} ≈ R27 478,26 ✓^{r} (3)

                                                                                          [21]

                                                                          Total: 150 marks