NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – MARCH 2016

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.

Key:
accuracy
method
method accuracy
continuous accuracy
rounding

Topics

F	Finance
MP	Maps and Plans
M	Measurement
P	Probability
DH	Data Handling

QUESTION 1

1.1 Saturday 2 p.m. – 4:30 p.m.

2 p.m. – 1:15 p.m.

= 45 min before dark (5)

1.2 6:55 p.m. – 4:30 p.m.

= 2 hrs 25 min (4)

1.3 $\%\ \text{discount} = \dfrac{\text{R}249,99 - \text{R}199,99}{\text{R}249,99} \times 100\%$

$= 20{,}00\ \ldots$

$= 20\%$ (4)

1.4 $\text{R}123{,}50 \times \dfrac{100}{65}$

= R190 (3)

1.5 1.5.1 $\dfrac{3}{12} = \dfrac{1}{4}$ (2)

1.5.2 $\dfrac{2}{12} \times 100 = 16{,}666\ldots = 17\%$ (4)

1.5.3 $\dfrac{4}{32} \times 40 = 5$ (4)

1.5.4 Tree Diagram 3 (2)

[28]

QUESTION 2

2.1 (a) $= 1 \times 5 \text{ hrs} \times 0{,}5 \text{ kWh} = 2{,}5 \text{ kWh} \times 7$

$= 17{,}5 \text{ kWh}$

(b) $= 1{,}5 \text{ kWh} \div 60 = 0{,}025 \text{ kW}$

(c) $= 210 \text{ kWh} \div 2{,}5 \text{ kWh} = 84 \div 7$

$= 12 \text{ hrs/day}$

OR

$210 \text{ kWh} \div 7 = 30 \text{ kWh}$

$30 \text{ kWh} \div 2{,}5 \text{ kWh}$

$= 12$

(d) $= 1$ (13)

2.2 2.2.1 $36\,500 \text{ MW} \times 1\,000 = 36\,500\,000 \text{ kW}$ (2)

2.2.2 $30\,000 \text{ MW} - 25\,000 \text{ MW}$

$= 5\,000 \text{ MW}$

$\therefore \frac{5\,000}{25\,000} \times 100$

$= 20\%$ (5)

2.2.3 $36\,500 \text{ MW} - 25\,000$

$= 11\,500 \text{ W}$ (3)

2.2.4 $1\,000 \times 1\,000 = 1\,000\,000$

$1\,000\,000 \div (1\,100 \div 30 \div 24 \times 2{,}5 \text{ hrs})$

$= 1\,000\,000 \div 3{,}82$

$= 261\,780{,}10 \ldots$

$= 261\,781 \text{ homes}$

OR

Elec/hr $= 1\,100 \text{ kW} \div 30 \div 24$

$= 1{,}53 \text{ kW/hr}$

$\therefore$ in 2 hrs $= 1{,}53 \times 2{,}5$

$= 3{,}82 \text{ kW}$

$1\,000\,000 \div 3{,}82 \text{ kW}$

$= 261\,780{,}10 \ldots$

$= 261\,781 \text{ homes}$

Note: If rounding off only occurred in final calculation, then 261 818,18 houses. $\therefore$ 261 819 houses.

(8)

[31]

QUESTION 3

3.1 The lengths are all the same. (4,5 cm) (2)

3.2 4,5 cm × 60 = 270 cm
= 2,7 m

OR

2,7 m = 270 cm
270 cm ÷ 4,5 = 60 (3)

3.3 Design 1: Holes 1, 2, 5, 7
Design 2: Holes 3, 4
Design 3: Holes 6, 9
Design 4: Hole 8 (4)

3.4 270 cm + 90 cm + 270 cm + 270 cm + 270 cm + 90 cm
= 1 260 cm
= 1 260 ÷ 100
= 12,6 m
≈ 13 m

OR

(270 cm × 3) + (90 cm × 5)
= 1 260 cm
=12,6 m
≈ 13 m (6)

3.5 3.5.1 (270 cm × 90 cm) + (135 cm × 90 cm)
= 24 300 cm^2 + 12 150 cm^2
= 36 450 cm^2

36 450 cm^2 + 267 300 cm^2
= 303 750 cm^2 ÷ 100 ÷ 100
= 30,375 m^2 (7)

3.5.2 30,375 m^2 × R115 m^2
= R3 493,13 × 1,14 = R3 982,17

OR

31 m^2 × R115
= R3 565,00 × 1,14 = R4 064,10

OR

R115 × 114% = R131,10
R131,10 × 30,4 m^2
R3 985,44 (4)

3.6 1 : 60
4,5 cm × 60 = 270 cm

270 ÷ 100
= 2,7 cm and not 4,5 cm

OR

He would decrease the scale.
If 1 : 50 → 4,5 cm × 50 = 225 cm
If 1 : 70 → 4,5 cm × 70 = 315 cm

The larger the scale, the smaller the diagram.
∴ to make the diagrams look bigger, the scale must be smaller. (4)

3.7 $\frac{£11,40 - £9,50}{£9,50} \times 100$
$= \frac{£1,90}{£9,50} \times 100$
= 20%
UK VAT is higher. (5)

[35]

QUESTION 4

4.1 Cost = R10 000 + R300 per guest (3)

4.2 Graph 1 – Venue 4
Graph 2 – Venue 1
Graph 3 – Venue 3
Graph 4 – Venue 2 (4)

4.3 4.3.1 Views

4.3.2 Ridge on the Hill

4.3.3 145

4.3.4 110 (4)

4.4 4.4.1 Compound – The interest is not a fixed amount.
It increases as the capital grows. (2)

4.4.2 (a) R31 064,80 + R217,45
= R31 282,25 (2)

(b) R32 619,32 (1)

(c) R34 732,83 – R34 491,39
= R241,44 (2)

4.4.3 R35 715,61 – R30 000
= R5 715,61 (3)

4.4.4 $\frac{\text{R}210}{\text{R}30\ 000} \times 100$
= 0,7% × 12
= 8,4% p.a. (5)

4.4.5 R30 000 × 1,084

= R32 520

R32 520 × 1,084

= R35 251,68

R35 251,68 × 1,084

= R38 212,82

R38 212,82 × 1,084

= R41 422,70

R41 422,70 × 1,084

= R44 902,20

R44 902,20 × 1,084

= R48 673,99

∴ It will take just over 5 years. (4)

[30]

QUESTION 5

5.1 Mean = $\text{R}598\,055 + \text{R}587\,230 + \left(\frac{\text{R}643\,440 + \text{R}672\,000}{2}\right) + \frac{\text{R}695\,800 + \text{R}1\,200\,000}{5}$

$= \frac{\text{R}3\,738\,805}{5}$

$= \text{R}747\,761 \div 12$

$= \text{R}62\,313{,}42$

$= \text{R}62\,300$ (8)

5.2 $\text{R}598\,055 \div \$51\,186$

$= \text{R}11{,}68$ (3)

5.3 $(\text{R}1\,200\,000 - \text{R}587\,230) \div 12$

$= \text{R}612\,770 \div 12$

$= \text{R}51\,064{,}17$ (5)

5.4 See Answer Sheet – Marking Guidelines. (10)

[26]

Total: 150 marks