



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## SENIOR CERTIFICATE EXAMINATIONS

### MATHEMATICAL LITERACY P2

2017

### MARKING GUIDELINES

**MARKS: 150**

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

**These marking guidelines consist of 15 pages.**

**KEY TO TOPIC SYMBOL:**

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

**QUESTION 1 [39 Marks]**

| Ques         | Solution  | Explanation   | T&L     |
|--------------|---|---|---------|
| 1.1.1        | $\text{Probability} = \frac{3}{15}$ $= 0,2$   | 1A numerator<br>1A denominator<br>1CA simplification<br>AO<br>(3)                         | P<br>L2 |
| 1.1.2        | 6 members scores decreased.<br>As a percentage $= \frac{6}{15} \times 100\%$<br>$= 40\%$  | 1A no. decreased<br>1MA percentage with denominator 15<br>1CA simplification<br>AO<br>(3) | D<br>L2 |
| 1.1.3<br>(a) | Arranging scores in ascending or descending order:<br>27; 28; 30; <b>32</b> ; 34; 38; 41; <b>42</b> ; 43; 43; 44; <b>46</b> ; 53; 56;<br>62<br>Median is 42.  | 1MA ordered data<br>2A median<br>AO<br>(3)  | D<br>L2 |
| 1.1.3<br>(b) | 43  | 2A mode<br>(2)  | D<br>L2 |
| 1.1.3<br>(c) | $\text{IQR} = \text{upper quartile} - \text{lower quartile}$ $= Q_3 - Q_1$ $= 46 - 32$ $= 14$   | CA from 1.1.3(a)<br>1RT 46<br>1RT 32<br>1CA IQR value<br>(3)                              | D<br>L3 |
| 1.1.4        | The interquartile range of 1 <sup>st</sup> tournament is smaller than that of the 2 <sup>nd</sup> tournament (i.e. 14 compared to 50)<br>Range of scores is smaller in the 1 <sup>st</sup> tournament compared to a range of 90 points scored in 2 <sup>nd</sup> tournament. Majority improved their scores.<br><b>OR</b> | 2J comparison<br>2J comparison  | D<br>L4 |

| Ques  | Solution  | Explanation  | T&L     |
|-------|---|--|---------|
|       | <p>Highest score by a player in 1<sup>st</sup> tournament is 38 points less than a player in 2<sup>nd</sup> tournament. ✓✓J</p> <p>The interquartile range of 2<sup>nd</sup> tournament is higher than that of the 1<sup>st</sup> tournament (i.e. 50 points higher than 14 points).</p> <p>The lowest score of tournament 2 is 17 less than the lowest score in tournament 1.</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;">✓✓J</p> <p>Players' performance in Tournament 1 were more consistent because the IQR is smaller and also the range is smaller. ✓✓J</p> | <p>2J comparison</p> <p>2J comparison</p> <p style="text-align: center;"><b>OR</b></p> <p>2J comparison</p> <p>2J comparison</p> <p style="text-align: right;">(4)</p>   |         |
| 1.2.1 | <p style="text-align: center;">✓MA</p> <p>Points : <math>3 \times 1 = 3</math></p> <p style="text-align: center;"><math>8 \times 2 = 16</math></p> <p style="text-align: center;"><math>3 \times 3 = 9</math> ✓M ✓A</p> <p>Point scored = <math>3 + 16 + 9 = 28</math></p> <p>Player F ✓CA</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;">✓MA ✓M ✓A</p> <p><math>3 \times 1 + 8 \times 2 + 3 \times 3 = 28</math> points</p> <p>Player F ✓CA</p>   | <p>1MA point in relation to position (multiply)</p> <p>1M adding points</p> <p>1A accumulated points</p> <p>1CA player</p> <p>1MA balls multiply by points</p> <p>1M adding</p> <p>1A total points</p> <p>1CA player</p> <p>AO</p> <p style="text-align: right;">(4)</p> | D<br>L3 |
| 1.2.2 | <p><math>45 \text{ cm} : 3,66 \text{ m}</math> ✓MA</p> <p style="text-align: center;">✓C</p> <p><math>0,45\text{m} : 3,66 \text{ m}</math></p> <p style="text-align: center;"><math>15 : 122</math> ✓CA</p> <p><b>OR</b></p> <p><math>45 \text{ cm} : 3,66 \text{ m}</math> ✓MA</p> <p><math>45 \text{ cm} : 366 \text{ cm}</math> ✓C</p> <p><math>15 : 122</math> ✓CA</p>  | <p>1MA writing in correct ratio</p> <p>1C convert cm to m</p> <p>1CA simplification (no units)</p> <p><b>OR</b></p> <p>1MA writing in correct ratio</p> <p>1C convert m to cm</p> <p>1CA simplification (no units)</p> <p style="text-align: right;">(3)</p>             | M<br>L2 |

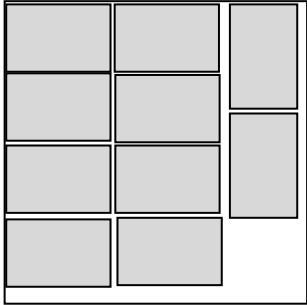
| Ques  | Solution   | Explanation   | T&L     |
|-------|--|---|---------|
| 1.2.3 | $\text{Shaded Area} = \pi r^2_{(\text{hoop})} - \pi r^2_{(\text{ball})}$ $= 3,142 \times (22,5\text{cm})^2 - 3,142 \times (12,4\text{cm})^2$ $= 1\,590,6375 \text{ cm}^2 - 483,11392 \text{ cm}^2$ $= 1\,107,52 \text{ cm}^2$ <p style="text-align: center;"><b>OR</b></p> $\text{Area of circle (hoop)} = \pi \times (\text{radius})^2$ $= 3,142 \times (22,5)^2$ $= 1\,590,6375\text{cm}^2$ $\text{Area occupied by the ball} = \pi \times (\text{radius})^2$ $= 3,142 \times (12,4)^2$ $= 483,11392 \text{ cm}^2$ $\text{Shaded area} = 1\,590,6375 - 483,11392 \text{ cm}^2$ $= 1\,107,52358 \text{ cm}^2$ | <p>1A radius hoop<br/>1A radius ball<br/>1M subtracting<br/>1SF correct values<br/>1CA area in cm<sup>2</sup><br/>1CA area occupied by the ball<br/>1CA simplification</p> <p style="text-align: center;"><b>OR</b></p> <p>1A radius<br/>1SF correct values<br/>1CA area<br/>1A radius of a ball<br/>1CA area occupied by the ball<br/>1M difference<br/>1CA simplification<br/>NPR</p> <p style="text-align: right;">(7)</p> | M<br>L3 |
| 1.3   | <p>Proportional price money:</p> $\text{Y group share } R8,1 \text{ mil} \times \frac{3}{9} = R2,7 \text{ mil}$ $\text{Each member of Y group will receive} = \frac{2,7 \text{ million}}{5}$ $= R0,54 \text{ mil.}$ $0,54 \times 1\,000\,000 = R540\,000$ <p>The player was correct.</p>   | <p>1MA getting 9<br/>1M multiply by ratio<br/>1CA price money to share<br/>1M divide by 5<br/>1CA each member's share<br/>1C to 1000's<br/>1O conclusion based on calculation</p>   | F<br>L4 |

| Ques | Solution   | Explanation   | T&L |
|------|--|---|-----|
|      | <p style="text-align: center;"><b>OR</b></p> <p>Group Y receives <math>\frac{3}{9}</math> of the share ✓✓MA</p> <p>Each member receives <math>\frac{1}{5}</math> ✓A</p> <p>A player from Y = <math>\frac{3}{45} \times 8,1</math> million ✓M</p> <p style="padding-left: 40px;">= 0,54 million ✓CA</p> <p style="padding-left: 40px;">= R540 000 ✓C</p> <p>The statement is correct ✓O</p> | <p>2MA correct ratio</p> <p>1A each member's share</p> <p>1M multiply with ratio</p> <p>1CA simplification</p> <p>1C conversion</p> <p>1O conclusion</p> <p>[max 4 marks if divided by 15 first to get 0,54 mil</p> <p>Max 5 marks if dividing by 3 instead of working with the ratio <math>\frac{3}{9}</math>]</p> <p style="text-align: right;">(7)</p> |     |
|      |  | <b>[39]</b>   |     |

## QUESTION 2 (37)

| Ques         | Solution   | Explanation  | T&L     |
|--------------|--|--|---------|
| 2.1.1<br>(a) | $\text{Amount} \times (106,18\%) = R14,44 \quad \checkmark\text{RT}$ $K = R14,44 \div 106,18\% \text{ or } 1,0618 \quad \checkmark\text{A}$ $= R13,599$ $= R13,60 \quad \checkmark\text{R}$  | 1RT correct values<br><br>1A dividing by 106,18%<br>or dividing by 1,0618<br><br>1R value in rand<br>(3)   | F<br>L2 |
| 2.1.1<br>(b) | $Q = \frac{R11,50 - R10,88}{R10,88} \times 100\% \quad \checkmark\text{F}$ $= 5,7 \quad \checkmark\text{CA}$ <p style="text-align: center;"><b>OR</b></p> $-0,81 + 12,2 + 7,82 + 2,28 + 6,18 + 5,24 + 10,07 + 11,34 \quad \checkmark\text{RT}$ $+ Q = 6,00 \times 10 \quad \checkmark\text{M}$ $Q = 60 - 54,32 \quad \checkmark\text{M}$ $= 5,68 \quad \checkmark\text{CA}$                                      | 1RT correct values<br>1M subtracting values<br>1F percentage change<br>1CA simplification<br><br><p style="text-align: center;"><b>OR</b></p> 1RT correct values<br>1M mean concept<br><br>1M subtracting values<br>1CA simplification<br>NPR<br>(4) | D<br>L2 |
| 2.1.1<br>(c) | $E = \frac{0,99 + 17,32 + 15,07 + 5,99 + 9,42 + 8,16 + 4,46 + 9,04 + 10,27 + 15,64}{10} \quad \checkmark\text{MA}$ $= \frac{96,36}{10} \quad \checkmark\text{MCA}$ $= 9,64 \quad \checkmark\text{CA}$  | 1MA adding values<br>1MCA mean concept<br>$\div 10$<br><br>1CA mean value<br>(3)   | D<br>L2 |
| 2.1.2        | <p><b>Apr. 2015 to Jan. 2016:</b> both prices increased. <math>\checkmark\checkmark\text{J}</math></p> <p><b>Jan. 2016 to Apr. 2016:</b><br/>           The price of the 600 g loaf of white bread remained the same (is constant). <math>\checkmark\text{J}</math></p> <p>The price of the 700 g loaf of white bread increased <math>\checkmark\text{J}</math></p> <p style="text-align: center;"><b>OR</b></p> | 2J both increased<br><br>1J 600 g constant<br><br>1J 700 g increased   | D<br>L4 |

| Ques  | Solution  | Explanation  | T&L     |
|-------|---|--|---------|
|       | Per period per bread<br>600 g:<br>Apr 2015 – Jan 2016 : The price increased. ✓J<br>Jan 2016 – Apr 2016: The price remained the same. ✓J<br>700 g:<br>Apr 2015 – Jan 2016 : The price increased. ✓J<br>Jan 2016 – Apr 2016 The price increased. ✓J   | 600g:<br>1J increased<br>1J constant<br>700g:<br>1J increased<br>1J increased<br>(4)   |         |
| 2.1.3 | He will have to adjust his spending ✓✓J to cater for the increased price. That is money that he was saving to use for other things will be used for wheat products.<br><b>OR</b> ✓✓J<br>Will experience financial difficulties (i.e. unable to afford bread any longer).<br><b>OR</b><br>If he buys the wheat products it will cost him more and he will have less money to spend on other stuff ✓✓J<br><b>OR</b> ✓✓J<br>Can buy less and less<br><b>OR</b> ✓✓J<br>Any other valid reason ✓✓J | 2J explanation<br><b>OR</b><br>2J explanation<br><b>OR</b><br>2J explanation<br><b>OR</b><br>2J explanation<br><b>OR</b><br>2J explanation<br>(2)  | F<br>L4 |
| 2.2   | Increase in 2017 = $6,6\% \times R6,72$ ✓MA<br>$= R0,44$ ✓A<br>Increased price = $R6,72 + R0,44$ ✓M<br>$= R7,16$ ✓CA<br>Increase in 2018 = $R7,16 \times 6\%$<br>$= R0,43$ ✓CA<br>Increased price = $R7,17 + R0,43$<br>$= R7,59$ ✓CA<br><b>OR</b><br>$R6,72 \times 1,066 = R7,16$ ✓MA ✓A ✓M ✓CA<br>$R7,16 \times 1,06 = R7,59$ ✓CA<br><b>OR</b><br>$R6,72 \times 1,066 \times 1,06 = R7,59$ ✓MA ✓A ✓M ✓A ✓M ✓CA   | 1MA multiplying correct values<br>1A increase amount<br>1M adding<br>1CA increased price<br>1CA increase %<br>1CA increased price<br><b>OR</b><br>1MA multiplying correct values<br>1A increase amount<br>1M adding<br>1CA increased price<br>1CA increase %<br>1CA increased price<br>(6) | F<br>L3 |

| Ques  | Solution  | Explanation  | T&L     |
|-------|---|--|---------|
| 2.3.1 | $V = 690 \text{ mm} \times 445 \text{ mm} \times 180 \text{ mm} \quad \checkmark \text{SF}$ $= 55\,269\,000 \text{ mm}^3 \quad \checkmark \checkmark \text{CA}$   | 1SF correct values<br>2CA volume<br>P if unit is wrong<br>(3)  | M<br>L2 |
| 2.3.2 | <p>Number of crates lengthwise</p> $= \frac{2}{0,69} \quad \checkmark \text{M}$ $= 2,89 \quad \checkmark \text{C}$ <p><math>\therefore</math> 2 crates <math>\checkmark \text{CA}</math></p> <p>Number of crates breadthwise</p> $= \frac{2}{0,445} = 4,4$ <p><math>\therefore</math> 4 crates <math>\checkmark \text{CA}</math></p> <p>Now the remaining space is <math>0,62 \text{ m} \times 2 \text{ m}</math></p> <p><math>\therefore</math> Turn crates: 1 more fit in <math>\left(\frac{0,62}{0,445}\right)</math> and two down</p> <p>Total <math>\checkmark \text{M}</math></p> $= (2 \text{ Lengthwise} \times 4 \text{ breadth wise} + 2) \times 9 \text{ on top of each other}$ $= 90 \text{ crates} \quad \checkmark \text{CA}$ <p><math>\therefore</math> 80 will fit <math>\checkmark \text{J}</math></p> <p><b>Layout:</b></p>  | $\frac{2000}{690}$ $= 2,89$<br>$\frac{2000}{445}$ $= 4,4$<br>1C conversion<br>1M dividing<br><br>1CA number length wise<br><br>1CA number<br><br>1M finding the total number<br>1CA number of crates<br><br>1J conclusion<br>(7) | M<br>L3 |





**QUESTION 3 (38 marks)**

| Ques         | Solution   | Explanation  | T&L     |
|--------------|--|--|---------|
| 3.1.1        | $\text{Total population} = \frac{22\,574\,500}{41,1\%}$ <p style="text-align: right;">✓RT<br/>✓M</p> $= 54\,925\,790,75$ <p style="text-align: right;">✓CA</p> $\approx 54\,925\,800 \text{ people}$ <p style="text-align: right;">✓R</p>  | 1RT correct values<br>1M dividing by %<br><br>1CA population<br><br>1R number of people<br>(4)   | D<br>L3 |
| 3.1.2<br>(a) | $P_{(\text{White female})} = \frac{2\,325\,100}{55\,908\,900}$ <p style="text-align: right;">✓MA</p> $= 0,042$ <p style="text-align: center;">✓CA</p> <p style="text-align: center;"><b>OR</b> 4,2% <b>OR</b> <math>\frac{1}{24}</math></p>  | 1MA numerator and denominator<br><br>1CA simplification<br><b>AO</b><br>(2)  | P<br>L3 |
| 3.1.2<br>(b) | $\text{Total males} = \text{RSA population} - \text{Female population}$ $= 55\,908\,900 - 28\,529\,100$ <p style="text-align: right;">✓MA</p> $= 27\,379\,800$ <p style="text-align: right;">✓CA</p> $P_{(\text{male})} = \frac{27\,379\,800}{55\,908\,900} = 0,489721672 \approx 0,49$ <p style="text-align: right;">✓CA <b>OR</b> 48,97%</p> <p style="text-align: center;"><b>OR</b></p> $P_{(\text{female})} = \frac{28\,529\,100}{55\,908\,900} = 0,51027... \approx 0,51 \text{ or } 51,03\%$ <p style="text-align: right;">✓A</p> $P_{(\text{male})} = 1 - 0,51027... \text{ or } 1 - 0,51 \text{ or } 100\% - 51,03\%$ <p style="text-align: right;">✓M</p> $= 0,489721672 \text{ or } 0,49 \text{ or } 49,97\%$ <p style="text-align: right;">✓CA</p> | 1MA difference<br>1CA males total<br><br>1CA probability<br><br><b>OR</b><br>1A P(female)<br><br>1M subtracting from 1<br>1CA P(male)<br>(3)   | P<br>L3 |
| 3.1.3        | $2016 = \frac{684\,100}{28\,529\,100} \times 100\%$ <p style="text-align: right;">✓MA<br/>✓M</p> $= 2,3979024 \approx 2,4\%$ <p style="text-align: right;">✓CA</p> <p style="text-align: center;"><b>OR</b></p> $2015 = \frac{673\,900}{28\,078\,700} \times 100\%$ <p style="text-align: right;">✓MA</p> $= 2,4\%$ <p style="text-align: right;">✓CA</p> $2014 = \frac{664\,900}{27\,635\,900} \times 100\%$ <p style="text-align: right;">✓MA</p> $= 2,4\%$ <p style="text-align: right;">✓CA</p> <p style="text-align: center;"><b>OR</b></p>   | 1MA numerator and denominator<br>1M multiply by 100%<br>1CA percentage<br><br>1MA numerator and denominator<br><br>1CA percentage<br><b>OR</b> | D<br>L4 |

| Ques  | Solution   | Explanation  | T&L      |
|-------|--|--|----------|
|       | $2014: 100\% - (80,2\% + 8,9\% + 8,5\%) = 2,4\%$ $2015: 100\% - (80,4\% + 8,9\% + 8,3\%) = 2,4\%$ $2016: 100\% - 80,6\% - 8,9\% - 8,1\% = 2,4\%$   | 1MA subtracting from 100%<br>1M adding other values<br>1CA percentage<br>1MA another year<br>1CA another year<br>(5)             |          |
| 3.2.1 | Total distance of a space and a post<br>$= 100 \text{ mm} + 40 \text{ mm}$<br>$= 140 \text{ mm}$ ✓A <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">                         or <math>0,1 \text{ m} + 0,04 \text{ m}</math><br/> <math>= 0,14 \text{ m}</math> </div><br>Distance between posts that must have a space and a post<br>$= 3\,460 \text{ mm} - 100 \text{ mm}$<br>$= 3\,360 \text{ mm}$ ✓M <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">                         or <math>3,460 \text{ m} - 0,14 \text{ m}</math><br/> <math>= 3,360 \text{ m}</math> </div><br>Number of small posts = $\frac{3360}{140}$ ✓M<br>$= 24$ ✓CA <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">                         or <math>\frac{3,360}{0,140}</math><br/> <math>= 24 \text{ m}</math> </div> | 1A correct distance<br><br>1M subtracting<br><br>1M dividing by 140<br>1CA number of small post<br>[Accept 26 full marks]<br>(4) | M<br>L2  |
| 3.2.2 | Direct sunlight coming into the rooms through the windows for much longer.<br>OR<br>Sun spend most of the time on the north side of the house.<br>OR<br>It is the side on which the sun shines most of the time during the day.  | 2J sun and time<br>OR<br>2J direction and time<br>OR<br>2J sunshine<br>(2)   | MP<br>L4 |
| 3.2.3 | Open outward because they have short width ✓✓O<br>OR<br>Designed to store things, as such they will obstruct inward opening of the doors. ✓✓O<br>OR<br>Storage space will be lost if doors open inwards ✓✓O<br>OR<br>Other rooms open inward because it is the entrance to the room. ✓O ✓O   | 2O wideness<br>OR<br>2O purpose<br>OR<br>2O space<br>OR<br>1O way of opening<br>1O purpose<br>(2)                                | MP<br>L4 |



| Ques  | Solution   | Explanation   | T&L     |
|-------|--|---|---------|
| 3.2.4 | <p>Carpeted floor = Area of a Passage + Dining + Living rooms</p> <p>DR area = <math>3,3274 \times 3,6576</math> ✓SF<br/> <math>= 12,17029824 \text{ m}^2</math> ✓CA</p> <p>LR area = <math>4,5720 \times 4,2672</math><br/> <math>= 19,5096384 \text{ m}^2</math> ✓CA</p> <p>Area of passage = 15% of <math>(12,17 + 19,51) \text{ m}^2</math><br/> <math>= 15 \% \text{ of } 31,68 \text{ m}^2</math><br/> <math>= 4,751990496 \text{ m}^2</math> ✓CA</p> <p>Total area = <math>12,17 \text{ m}^2 + 19,51 \text{ m}^2 + 4,75 \text{ m}^2</math> ✓M<br/> <math>= 36,43 \text{ m}^2</math> ✓CA<br/> <math>\approx 37 \text{ m}^2</math> ✓R</p>   | <p>1SF finding area</p> <p>1CA area of DR</p> <p>1CA area of LR</p> <p>1M finding 15%</p> <p>1CA area of passage</p> <p>1M adding 3 or 4 values<br/> 1CA total area<br/> 1R rounding<br/> [Max 6 marks if total area is calculated]</p> <p>(8)</p>              | M<br>L3 |
| 3.2.5 | <p><b>Labour Cost:</b> <math>R1\ 600 + 37 \times R70</math> ✓MA<br/> <math>= R1\ 600 + R2\ 590</math><br/> <math>= R4\ 190</math> ✓CA</p> <p>Number of boxes = <math>37 \div 2,15</math> ✓M<br/> <math>= 17,209</math><br/> <math>\approx 18</math></p> <p><b>Cost for boxes flooring:</b><br/> <math>18 \times R299,90</math><br/> <math>= R5\ 398,20</math> ✓CA</p> <p>Number of underlay rolls: <math>37 \div 10</math><br/> <math>= 3,7</math><br/> <math>\approx 4</math></p> <p><b>Underlayer:</b> <math>4 \times R56,90</math><br/> <math>= R227,60</math> ✓CA</p> <p><b>Total cost</b> = <math>R4\ 190 + R5\ 398,20 + R227,60</math> ✓MCA<br/> <math>= R9\ 815,80</math> ✓CA</p> <p>The budget is sufficient. ✓O</p> | <p>Area CA from 3.2.4 above<br/> 1MA finding labour</p> <p>1CA labour cost</p> <p>1M dividing by 2,15</p> <p>1CA cost of boxes</p> <p>1CA underlayer cost</p> <p>1MCA adding all 3 different cost types<br/> 1CA total cost</p> <p>1O conclusion</p> <p>(8)</p> | F<br>L4 |
|       |  | (8)   |         |
|       |  | <b>[38]</b>   |         |

**QUESTION 4 [36 marks]**

| Ques  | Solution   | Explanation   | T&L             |
|-------|--|---|-----------------|
| 4.1.1 | <p style="text-align: center;">✓RT ✓RT ✓RT</p> <p>Tax bracket 3, 4 and 5<br/>[Accept Tax bracket 1]</p> <p style="text-align: center;"><b>OR</b></p> <p>\$37 001 – \$87 000 ✓RT</p> <p style="text-align: center;">✓RT</p> <p>\$87 001 – \$180 000.</p> <p>\$180 001 and over. ✓RT</p> <p>[Accept \$0 – \$1 200]</p>   | <p>1RT bracket3<br/>1RT bracket 4<br/>1RT bracket 5</p> <p style="text-align: center;"><b>OR</b></p> <p>1RT tax bracket</p> <p>1RT tax bracket</p> <p>1RT tax bracket</p> <p style="text-align: right;">(3)</p> | <p>F<br/>L2</p> |
| 4.1.2 | <p>Pay <u>extra</u> tax (2% on taxable income) ✓✓O</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;">✓✓O</p> <p>The levy is an <u>extra (additional, more)</u> tax on their income.</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;">✓✓O</p> <p><u>Higher income earners</u> are subjected to an <u>extra tax</u> in addition to usual income tax paid.</p> | <p>2O reason</p> <p style="text-align: center;"><b>OR</b></p> <p>2O reason</p> <p style="text-align: center;"><b>OR</b></p> <p>2O reason</p> <p style="text-align: right;">(2)</p>                              | <p>F<br/>L4</p> |

| Ques  | Solution   | Explanation  | T&L       |
|-------|--|--|-----------|
| 4.1.3 | <p><b>Tax due 2016:</b></p> $= \$54\,547 + 45\% \times (\overset{\checkmark\text{RT}}{\$289\,303,26} - \overset{\checkmark\text{SF}}{\$180\,000})$ $= \$54\,547 + 45\% \times \$109\,303,26$ $= \$54\,547 + \$49\,186,47$ $= \$103\,733,47 \quad \checkmark\text{CA}$ <p>Medical levy = <math>\\$289\,303,26 \times 2\%</math><br/> <math>= \\$5\,786,07 \quad \checkmark\text{MA}</math></p> <p>Total due = <math>\\$103\,733,47 + \\$5\,786,07</math><br/> <math>= \\$109\,519,54 \quad \checkmark\text{CA}</math></p> <p><b>Tax due 2017:</b></p> $= \$54\,232 + 45\% \times (\overset{\checkmark\text{RT}}{\$311\,001} - \overset{\checkmark\text{SF}}{\$180\,000})$ $= \$54\,232 + 45\% \times \$131\,001$ $= \$54\,232 + \$58\,950,45$ $= \$113\,182,45 \quad \checkmark\text{CA}$ <p>Medical levy = <math>2\% \times \\$311\,001</math><br/> <math>= \\$6\,220,02</math></p> <p>Total for 2017: <math>\\$113\,182,45 + \\$6\,220,02 \quad \checkmark\text{CA}</math><br/> <math>= \\$119\,402,47</math></p> <p>Tax due difference: <math>\\$119\,402,47 - \\$109\,519,54 \quad \checkmark\text{M}</math><br/> <math>= \\$9\,882,93. \quad \checkmark\text{CA}</math></p> <p>The statement is VALID. <math>\checkmark\text{O}</math></p> | <p>1RT tax bracket<br/>1 SF correct substitution</p> <p>1CA tax due</p> <p>1MA levy value</p> <p>1CA total due</p> <p>1RT tax bracket<br/>1SF correct values</p> <p>1CA tax due</p> <p>1CA total</p> <p>1M finding difference</p> <p>1CA simplification</p> <p>1O conclusion</p> <p>(12)</p> | F<br>L3/4 |
| 4.2.1 | <p>Mary Rose restaurant; Denmark hotel; Civic Centre</p>   | <p>3A venues<br/>Accept hotel</p> <p>(3)</p>   | MP<br>L2  |

| Ques  | Solution  | Explanation   | T&L      |
|-------|---|---|----------|
| 4.2.2 | <p style="text-align: right;">✓✓O</p> <p>Because it runs over the river.</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: right;">✓✓O</p> <p>Portions of the river not visible from above where the highway crosses or passes over the river.</p>   | <p>2O reason</p> <p style="text-align: center;"><b>OR</b></p> <p>2O reason</p> <p style="text-align: right;">(2)</p>  | MP<br>L4 |
| 4.2.3 | <p style="text-align: center;">✓✓RT    ✓✓RT    ✓✓RT</p> <p>North west <b>OR</b> NW <b>OR</b> West of North</p>  | <p>2RT direction</p> <p style="text-align: right;">(2)</p>  | MP<br>L2 |
| 4.2.4 | <p>Turn right walk along Walker Str ✓A</p> <p>Turn right into Strickland Str ✓A</p> <p>Pass South Coast Highway</p> <p>And turn left into Mount Shadforth Rd ✓A</p> <p>Restaurant will be on his right</p> <p style="text-align: center;"><b>OR</b></p> <p>Turn SW into Walker Street and proceed. ✓A</p> <p>At the corner turn NW and continue. ✓A</p> <p>Cross South Coast Highway ✓A</p> <p>Turn W into Mount Shadforth Rd. ✓A</p> <p>The restaurant is on the northern side of the road.</p>  | <p>1A route and turn</p> <p>1A route and turn</p> <p>1A turn and road</p> <p style="text-align: center;"><b>OR</b></p> <p>1A route and turn</p> <p>1A route and turn</p> <p>1A turn and road</p> <p style="text-align: right;">(3)</p>  | MP<br>L3 |
| 4.2.5 | <p>Measured distance between = 23 mm ✓✓MA</p> <p>Scale 23 mm is 100 m ✓C</p> <p>How long it will take him = Time = <math>\frac{\text{Distance}}{\text{Speed}}</math> ✓F</p> <p style="text-align: center;"><math>= \frac{100\text{m}}{1,1\text{m/s}}</math> ✓A</p> <p style="text-align: center;"><math>= 90,91 \text{ seconds}</math> ✓CA</p> <p style="text-align: center;">In minutes <math>90,909 \div 60 = 1,52 \text{ minutes.}</math> ✓C ✓CA</p> <p>No. He can walk in less than 2 minutes at that speed. ✓O</p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;">2 min = 120 sec ✓C ✓A</p> <p>Distance = <math>1,1 \text{ m/s} \times 120 \text{ s} = 132 \text{ m}</math> ✓A ✓F ✓CA</p> <p>Measured distance = 23 mm ✓✓MA</p> <p>Scale 23 mm = 100 m ✓C</p> <p>He will have passed the Indigo Cuisine ✓O</p> <p><b>[Accept measurements 23 mm to 25 mm]</b></p> | <p>2MA measuring</p> <p>1C using scale</p> <p>1F formula</p> <p>1A dividing by speed</p> <p>1CA calculating time</p> <p>1C divide by 60</p> <p>1CA minutes</p> <p>1O conclusion</p> <p style="text-align: center;"><b>OR</b></p> <p>1C multiply by 60</p> <p>1A time in seconds</p> <p>1A multiply with speed</p> <p>1F formula</p> <p>1CA distance</p> <p>2MA measurement</p> <p>1C using scale</p> <p>1O conclusion</p> <p style="text-align: right;">(9)</p> | MP<br>L4 |
|       |   | <b>[36]</b>   |          |

**TOTAL: 150**