MATHEMATICAL LITERACY
COMMON TEST
MARCH 2018

NATIONAL SENIOR CERTIFICATE

GRADE 10

MARKS: 75
TIME: 1½ hours

This question paper consists of 6 pages, 1 Annexure and 1 Answer Sheet.
INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions. Answer ALL the questions.

2. Answer QUESTION 3.2.2 on the attached answer sheet. Write your Name in the space provided on the answer sheet and hand in the answer sheet with your ANSWER BOOK.

3. Number the answers correctly according to the numbering system used in this question paper.

4. Start EACH question on a NEW page.

5. You may use an approved calculator (non-programmable and non-graphical). Unless stated otherwise.

6. Show ALL the calculation clearly.

7. Round off ALL the final answers appropriately according to the given context, unless stated otherwise.

8. Indicate units of measurements, where applicable.

9. Write neatly and legibly.
QUESTION 1

1.1 Mrs Madlala, a grade 10 Mathematical Literacy teacher at Sifundosethu High gave learners a test out of 70 marks. She has 60 learners in her class and 35 are girls.

1.1.1 Determine the number of boys in the classroom  
1.1.2 Calculate the number of girls as a percentage of total learners in the classroom  
1.1.3 What will be the ratio of girls to boys in the classroom?  
1.1.4 Calculate the actual pass mark of the test, if the pass percentage is 30% for the test.

1.2 Mrs Jones is a sport organiser at the same school with Mrs Madlala, she received a quotation for the school cricket kit.

Study the quotation in ANNEXURE A and answer the following questions:

1.2.1 Write down the name of the store from where she received the quotation.  
1.2.2 On which day and date will the quotation expire?  
1.2.3 Calculate the number of cricket bats (A) quoted.  
1.2.4 Show by calculation how the discounted value of R1 671, 05 was calculated.  
1.2.5 At which floor will you find Mrs Jones’s room?  
1.2.6 Identify the error made by the cashier on Mrs Jones identification number.
2.1 The uMhlathuze Municipality uses the tariff structure shown below to charge electricity for the residential customers. Study the tariff structure below and answer the questions that follow.

Municipality billing tariff structure as from 1 July 2017 to 1 July 2018

- Block 1 from 0 kwh up to 50 kwh for R0,8545/kwh
- Block 2 from 51 kwh up to 350 kwh for R1,0910/kwh
- Block 3 from 351 kwh up to 600 kwh for R1,5305/kwh
- Block 4 above 600 kwh for R1,598/kwh

Source: Umhlathuze Municipality

2.1.1 Define the term tariff.

2.1.2 Calculate the daily consumption in kwh for a house hold that consumed 250 kwh in February 2018.

2.1.3 How much will it cost a family if they used 46 kwh of electricity in February 2018?

2.2 The clock alongside shows the time, when Dan woke up in the morning of 27 March 2017.

2.2.1 Express the time shown on the clock using the analogue format.

2.2.2 Dan is planning to watch two TV programmes from the time he wakes up, the first one plays for 25 min and the other 15 min. Determine the time when two programmes finishes.

2.2.3 If the movie is going to be played for 115 minutes. How many hours it will actually play?
Kershie leaves home at 09:00 to visit his friend Sam.

He walked for 2km than took a 30 minutes rest along the way, before he start walking again.

Study the graph below and answer the questions that follow.

2.3.1 How far is Sam’s house from Kershie’s home? (2)

2.3.2 Determine the time Kershie will spend on his friend place. (2)

2.3.3 At what time did he left his friend place to go back home? (3)

2.3.4 How many minutes did Kershie spend for the last 3km of his journey back home. (3)

2.3.5 Determine Kershie’s average speed of the journey to his friend place excluding the resting time to the nearest km per hour.

You may use the formula: \[ \text{Speed} = \frac{\text{Distance travelled (km)}}{\text{Time taken (hours)}} \] (3)
QUESTION 3

3.1 Ms Holmes teaches Tourism in grade 10 at Mayerton Secondary School. She organises an excursion to the Airport, and there are 68 learners in her classroom.

3.1.1 Determine the number of 14-seater mini-buses will be required for transport, if all 68 learners go on the excursion and why. (3)

3.1.2 Hence, determine the number of full mini buses to transport the learners (2)

3.2 Ms Holmes decided to hire a bus for the excursion

- Only 60 learners went on an excursion
- The cost of hiring the bus is R1 200

Source: www.google.co.za/search?q=bus&dc

The table below shows the cost per learner going on an excursion. Use the information and the table to answer the questions that follow.

**TABLE 2: The cost per learner going to an excursion**

<table>
<thead>
<tr>
<th>Number of learners</th>
<th>60</th>
<th>50</th>
<th>P</th>
<th>...</th>
<th>30</th>
<th>20</th>
<th>15</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per learner(R)</td>
<td>R20,00</td>
<td>R24,00</td>
<td>R25,00</td>
<td>...</td>
<td>R40,00</td>
<td>R60,00</td>
<td>Q</td>
<td>R120,00</td>
</tr>
</tbody>
</table>

3.2.1 Calculate the value of:

(a) P (2)

(b) Q (2)

3.2.2 Use the ANSWER SHEET provided to draw the graph that illustrates the relationship between the cost and number of learners going on an excursion. (4)

3.2.3 Use the graph or table 2 to identify the type of the relationship. (2)

3.2.4 What happens to the cost per learner, if a number of learners going on excursion increase? (2)
3.3 During lunch, Ms Holmes visited the nearest supermarket to buy Daly’s 1.5 l concentrated juice. The dilution factor on the label reads 1:4.

3.3.1 What does the dilution factor of 1:4 mean? (2)

3.3.2 Ms Holmes wants to mix the juice with water using the 15 litres container. She stated that 10 l of water and 5 l of concentrated juice will be required. Show with calculations whether her statement is correct. (4)

3.3.3 The juice costs was R23.90 before it was reduced to R19.90. Determine the percentage discount Ms Holmes would receive.

You may use the formula:

\[
\text{Percentage discount} = \frac{\text{New Amount} - \text{Old Amount}}{\text{Old Amount}} \times 100\% 
\]

3.3.4 Nosipho one of the learners, stated that the juice will taste sweeter if they mix 2 1/2 cups of Daly’s juice to 10 cups of pure water. Justify with calculations whether her statement is correct. (4)

[30]

TOTAL: 75
**TABLE 1: The quotation for the school cricket team**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>QTY</th>
<th>Unit price</th>
<th>Tax rate VAT</th>
<th>Net price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS1BT</td>
<td>Cricket Batting pads</td>
<td>13</td>
<td>R1 090</td>
<td>14%</td>
<td>R1 4770</td>
</tr>
<tr>
<td>BasC002</td>
<td>Cricket Bat</td>
<td>A</td>
<td>R1 349</td>
<td>14%</td>
<td>R1 349</td>
</tr>
<tr>
<td>CsBa005</td>
<td>Cricket Ball (Maroon)</td>
<td>8</td>
<td>R218</td>
<td>14%</td>
<td>R1 744</td>
</tr>
<tr>
<td>Gsb0010</td>
<td>Cricket batting Gloves</td>
<td>13</td>
<td>R309</td>
<td>14%</td>
<td>R4 017</td>
</tr>
</tbody>
</table>

**Terms and conditions:** prices are valid for 10 days only, Prices and stock are subjects to change and availability.

**All Orders will be release once the money reflects on our bank account.**

<p>| Sub total  | R33 421 |
| Discount @ 5% | R1 671.05 |
| Amount excl VAT | R31 749.95 |
| Tax @ 14% | R4 444.99 |
| TOTAL DUE | R36 194.94 |</p>
<table>
<thead>
<tr>
<th>QUESTION 1</th>
<th>SOLUTION</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>Number of boys = 60 - 35 ✓ MA &lt;br&gt; = 25 ✓ A</td>
<td>1MA subtracting number of girls &lt;br&gt; 1A answer &lt;br&gt; AO (2)</td>
</tr>
<tr>
<td>1.1.2</td>
<td>Percentage $\frac{35}{60} \times 100% ✓ M$ &lt;br&gt; = 58.33% ✓ A</td>
<td>1M, %concept &lt;br&gt; 1A Answer &lt;br&gt; AO (2)</td>
</tr>
<tr>
<td>1.1.3</td>
<td>35:25 ✓ M &lt;br&gt; :7:5 ✓ A</td>
<td>1M, correct ratio order &lt;br&gt; 1A answer &lt;br&gt; AO (2)</td>
</tr>
<tr>
<td>1.1.4</td>
<td>Actual pass mark $\frac{50}{100} \times 70$ marks ✓ M &lt;br&gt; = 21 marks ✓ A</td>
<td>1M percentage concept &lt;br&gt; 1A Answer &lt;br&gt; AO (2)</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Sport Vibe ✓ A</td>
<td>2A answer (2)</td>
</tr>
<tr>
<td>1.2.2</td>
<td>✓ A Tuesday, 07/02/2018 ✓ A</td>
<td>1A Day &lt;br&gt; 1A Date &lt;br&gt; OR (2)</td>
</tr>
<tr>
<td>1.2.3</td>
<td>✓ A Tue, 07 Feb 2018 ✓ A</td>
<td>1A Day &lt;br&gt; 1A Date (2)</td>
</tr>
<tr>
<td>1.2.4</td>
<td>Discount of 5% = $\frac{5}{100} \times 33421 ✓ M$ &lt;br&gt; = R1 671.05</td>
<td>2M percentage discount concept (2)</td>
</tr>
<tr>
<td>1.2.5</td>
<td>$10^{th}$ floor ✓ A</td>
<td>2A answer (2)</td>
</tr>
<tr>
<td>1.2.6</td>
<td>- There is no 20th month on the calendar year ✓ E &lt;br&gt; OR - The month of birth is incorrect ✓ E</td>
<td>2A explanation OR 2A explanation (2)</td>
</tr>
</tbody>
</table>

This marking guideline consists of 5 pages.
<table>
<thead>
<tr>
<th>Level</th>
<th>Topology</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explanation**

- **ICU Admission**
  - Diagnosis: 09:00+12:00+15:00
  - Time: 3 minutes
  - Inpatient 09:00

- **ICU Discharge**
  - Time: 12:00
  - Inpatient 09:00

**Calculation**

- **Time Calculation**
  - Total Time = 09:00 + 12:00 + 15:00
  - Result: 3 hours

**Diagnosis**

- **ICU Admission**
  - Diagnosis: 09:00+12:00+15:00
  - Time: 3 minutes
  - Inpatient 09:00

- **ICU Discharge**
  - Time: 12:00
  - Inpatient 09:00

**Solution**

- **ICU Admission**
  - Diagnosis: 09:00+12:00+15:00
  - Time: 3 minutes
  - Inpatient 09:00

- **ICU Discharge**
  - Time: 12:00
  - Inpatient 09:00

**Topical Questions**

1. What is the calculation for total time in the ICU?
   - **Calculation**
     - Total Time = 09:00 + 12:00 + 15:00
     - Result: 3 hours

2. What is the diagnosis at ICU Admission and Discharge?
   - **Diagnosis**
     - Admission: 09:00+12:00+15:00
     - Discharge: 12:00
<table>
<thead>
<tr>
<th>QUESTION 3</th>
<th>SOLUTION</th>
<th>EXPLANATION</th>
<th>TOPIC/LEVEL</th>
</tr>
</thead>
</table>
| 3.1.1     | No. of mini buses = 68 ✓M  
            14✓M  
            = 4.857 ✓M  
            = 5 mini-buses ✓R  
            ∴ All 68 learners are accommodated OR 4 mini buses will not be enough ✓O | 1M dividing by 14  
            1A rounding  
            1O reason | B  
            1.4 |
| 3.1.2     | 4 mini buses ✓A | 2A answer | B |
| 3.2.1a    | $P = \frac{R1200}{M}$ ✓M  
            $= 48 learners ✓A$ | 1M concept  
            1A answer  
            AO | B  
            1.3 |
| 3.2.1b    | $Q = \frac{R1200}{M}$ ✓M  
            $= 80 ✓A$ | 1M concept  
            1A answer  
            AO | B  
            1.3 |

![Cost per learner going on a trip](image)

1A for correct starting point  
1A, joining points  
1A for correct last points  
1CA for shape

3.2.2

<table>
<thead>
<tr>
<th>QUESTION 3</th>
<th>SOLUTION</th>
<th>EXPLANATION</th>
<th>TOPIC/LEVEL</th>
</tr>
</thead>
</table>
| 3.2.3     | Indirect proportion/ inverse proportion. ✓✓E | 2A answer | B  
            (2)  
            1.1 |
| 3.2.4     | As the number of learners, increase the cost per learner decrease. ✓✓O | 2O reason | B  
            (2)  
            1.4 |
| 3.3.1     | One part of concentrated juice is added to 4 parts of pure water. ✓✓E | 2E explanation | B  
            (2)  
            1.1 |
| 3.3.2     | Amount of juice = $\frac{15c}{5}$ ✓MA  
            $= 3$ ✓CA  
            Amount of water = $\frac{5c}{4}$ ✓CA  
            $= 12l ✓CA$  
            ∴ her statement is incorrect. ✓CA | 1MA, dividing by 5 parts  
            1CA amount of concentrated juice  
            1CA amount of water  
            1CA conclusion | B  
            1.4 |
| OR       | Amount of juice = $\frac{15c}{5}$ ✓MA  
            $= 3$ ✓CA  
            Amount of water = $\frac{5c}{4}$ ✓CA  
            $= 12l ✓CA$  
            ∴ her statement is incorrect. ✓CA | 1MA, total of 5 parts  
            1CA amount of concentrated juice  
            1CA amount of water  
            1CA conclusion | OR  
            1.4 |
| 3.3.3     | Percentage discount $\frac{R23.90 - R19.90 \times 100% ✓M}{R19.90 + R4 \times 100% ✓SF}$  
            $= 16.74% ✓A$ | 1M, percentage concept  
            1SF, correct simplification  
            1CA, answer | F  
            1.2 |
| 3.3.4     | 2.5 cups : 10 cups ✓M  
            1:4 ✓SF  
            ∴ Her statement is incorrect, because the mixture gives the same ratio as the dilution factor. ✓✓E  
            OR  
            • Calculations gives the same ratio ✓E | 1MA correct ratio and order  
            1A simplification  
            2E explanation | B  
            1.4  
            (4)  
            TOTAL : 75 |

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