INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions:

1. Write your answers in your answer book, which is provided in the exam.
2. Read the instructions carefully for each question and answer only what is required.
3. Begin with the question for which you think you'll get the best marks.
4. Number the answers correctly according to the numbering system used in this question paper.
5. The mark allocation of each question will determine the length of your answer. Give enough facts to earn the marks allocated. Don't waste time by giving more information than required.
6. Please write neatly – we cannot mark illegible handwriting.
7. Start the answer for each question on a NEW page, for example Question 1 – new page, Question 2 – new page.
8. You are allowed to use a non-programmable calculator and appropriate mathematical instruments.
9. Show ALL calculations clearly.
10. Round off ALL the final answers to TWO decimal places, unless stated otherwise.
11. Indicate units of measurement, where applicable.
12. Any student caught cheating will have his or her examination paper and notes confiscated. The College will take disciplinary measures to protect the integrity of these examinations.
13. If there is something wrong with or missing from your question paper or your answer book, please inform your invigilator immediately. If you do not inform your invigilator about a problem, the College will not be able to rectify it afterwards, and your marks cannot be adjusted to allow for the problem.
14. This question paper may be removed from the examination hall after the examination has taken place.

This question paper consists of FOUR questions. Answer ALL the questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>
QUESTION 1

In a survey conducted on favourite snacks for the school tuck shop, Jeremy found the following information. He conducted the survey in his grade 9 class and constructed the following bar graph:

favourite snacks in my school

<table>
<thead>
<tr>
<th>Snack</th>
<th>Number of learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>nik naks</td>
<td>4</td>
</tr>
<tr>
<td>fritos</td>
<td>8</td>
</tr>
<tr>
<td>lays chips</td>
<td>6</td>
</tr>
<tr>
<td>spookies</td>
<td>16</td>
</tr>
<tr>
<td>ghost pops</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Adapted from Gr 11 Mathematical Literacy Paper 2, September 2012 (Eastern Cape)

1.1.1 Calculate how many learners Jeremy has interviewed. (2)

1.1.2 If there are 900 learners at Jeremy's school, calculate what percentage of the learners he interviewed. Give your final answer to 1 decimal place. (3)

1.1.3 Do you think that this information is representative of the learners at Jeremy's school? Give a reason for your answer. (2)

1.1.4 Do you think the heading of the bar graph is correct? If not, correct the heading. (2)

1.1.5 The person in charge of the tuck shop is not happy with Jeremy's findings and asks him to conduct a survey that is more widespread. Explain what she means by 'more'. (2)

1.1.6 To keep the favourite snacks of the learners in stock, she would like to see 40% of the school's learners interviewed. Calculate how many learners Jeremy must interview. (2)
1.2 The following table shows the percentage change in the price of a packet of Niknaks from 2007 – 2011. Study the graph and answer the questions.

<table>
<thead>
<tr>
<th>Percentage Change in Price of Niknaks 2007 - 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>2007</td>
</tr>
<tr>
<td>2008</td>
</tr>
<tr>
<td>2009</td>
</tr>
<tr>
<td>2010</td>
</tr>
<tr>
<td>2011</td>
</tr>
</tbody>
</table>

1.2.1 In which year did the price of the Niknaks decrease? Explain how it is illustrated on the graph. (2)

1.2.2 Between which years did the price of the Niknaks increase the most? Explain how it is illustrated on the graph. (2)

1.2.3 The price of Niknaks in 2009 was R3,70. Calculate the price of Niknaks in 2008. (3)

1.2.4 Show how the percentage change in 2011 was calculated if the price in 2010 was R3,99 and R4,55 in 2011. (3)

1.3 The dimensions of a chocolate bar are illustrated in the diagram below. Note: Diagram is not drawn to scale.

1.3.1 Calculate the volume of the chocolate bar. Give your answer in cm$^3$. (3)

Use the formula: Volume = l $\times$ b $\times$ h.
1.3.2 Calculate the surface area of the chocolate bar in cm$^2$.

Use the formula: Surface Area = 2 × Area of base + perimeter of base × height. \(5\)

1.3.3 To keep the chocolate bar fresh, a special wrapping is used. The wrapping that is used to cover the Crunchie bar is 12.5% more than the surface area of the Crunchie bar. Calculate how much wrapping is needed for the Crunchie bar. \(4\) [35]

**QUESTION 2**

2.1 Bongiwe just started a new job and the one thing that he really wants to buy for himself is a flat screen (plasma) television for his room. Seeing that he does not have the cash to pay for the television, he will consider two options. He saw the following advertisement:

**OPTION 1**
Cash price: R7 999

**OPTION 2**
Loan from a bank for the cash value of the television set, repayment period for the loan is 30 months at an interest rate of 11.25% per annum compounded half yearly.

2.1.1 Calculate how much Bongiwe will pay for the deposit. \(2\)

2.1.2 Calculate how much Bongiwe will pay every month? \(2\)

2.1.3 Calculate how much Bongiwe will pay in total for the television if he buys it on hire purchase. \(2\)

2.1.4 Refer to Option 1 and use the formula $1 + ni = A/P$ to calculate what interest rate was charged on the purchase price, where:

- $A =$ final amount;
- $P =$ original amount;
- $n =$ number of years; and
- $i =$ interest rate. \(7\)
2.1.5 If Bongiwe decides to opt for a loan from a bank (Option 2) for the cash value of the television, calculate how much he will have to repay if he has to repay the loan over a 30 month period at an interest rate of 11.25% per annum compounded half yearly. Use the formula $A = P(1+i)^n$ where:

- $A = \text{final amount}$;
- $P = \text{original amount}$;
- $n = \text{number of years}$; and
- $i = \text{interest rate}$.  

2.1.6 Which option would you advise Bongiwe to consider? Give a reason for your answer.

2.2 The following is a drawing of the television (without the stand) that Bongiwe wants to buy. Note: Drawing is not to scale.

2.2.1 The screen of this television is 40” (inches) and is measured diagonally as shown in the diagram. Calculate the actual length of the screen in centimetres if 1” = 2.5 cm.

2.2.2 The screen of the television is surrounded by an outside frame that has a length of 97 cm and a width of 58.7 cm as shown in the diagram. Calculate the area of the television in m². Use the formula: $A = L \times B$.

2.2.3 On his wall, Bongiwe has a space of 0.8 m² where he wants to mount the television. According to the installation instructions, there must be a 10 cm distance on all sides to ensure proper ventilation. Will the space be big enough for the mounting of the television? Show all your calculations.
2.3 Bongiwe's two favourite television series are *Isidingo* and *Sewende Laan*, but they are screened during the same timeframe (18h30 – 19h00 from Monday to Friday). *Isidingo* is interrupted by five advertisements of 45 seconds each, while *Sewende Laan* is interrupted by four advertisements of a ½ minute each.

Which one of the two series will give Bongiwe maximum viewing time in one day? Show all your calculations. (6)

**QUESTION 3**

The following graphs show the change of the crude oil price and the change in the Dollar / Rand exchange rate over time, from January 2007 to March 2008.

![Graph showing price in $ per barrel of Brent Crude Oil and Rand/Dollar exchange rate from January 2007 to March 2008.](image)

3.1 What was the value of Brent Crude oil in October 2007 in U.S. Dollars? (1)

3.2 What was the value of Brent Crude oil in October 2007 in Rands? (1)

3.3 Calculate the Rand to Dollar exchange rate in October 2007. (3)

3.4 Calculate the percentage change in the value of Brent Crude oil from January 2007 to March 2008. (3)

3.5 Calculate the mean Brent crude oil price between January 2007 and November 2007 in US$. (3)

3.6 Determine the median Brent crude oil price between January 2007 and December 2007 in US$. (2)

3.7 Use the graphs and explain if there is any relationship between the Brent Crude oil price and the Rand / Dollar exchange rate. (2) [15]
QUESTION 4

4.1 Shameeg, a Grade 11 learner, decided to sell compact discs (CDs). He wants to use the profit that he makes to fund his matric farewell costs. He bought CDs with R500 he received for his birthday. Take into consideration that Shameeg spends R30 towards transport costs. The following graph shows his expenses and income for the CDs.

Source: Adapted from Gr. 11 November 2012 Mathematical Literacy Paper 2 (Eastern Cape)

4.1.1 Calculate the cost of one CD. (2)

4.1.2 Calculate the selling price of one CD. (2)

4.1.3 With reference to your answers in Questions 4.1.1 and 4.1.2, calculate the percentage profit he makes on one CD. Use the following formula:

\[
\text{Percentage profit} = \frac{\text{Income} - \text{Expenses}}{\text{Expenses}} \times 100
\] (2)

4.1.4 Give the coordinates of the point where the two graphs intersect. (2)
4.1.5 Name the point where the two graphs intersect and explain what is meant by this intersection. (2)

4.1.6 Explain what can be noticed before the point that you have mentioned in Question 4.1.5. Your explanation must refer to income and expenses. (2)

4.1.7 The graph for expenses does not start at the origin (0;0). Explain why. (1) [13]

GRAND TOTAL: 100 MARKS