This question paper consists of 10 pages.
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. Number the answers correctly according to the numbering system used in this question paper.
3. Clearly show ALL calculations, diagrams, graphs, et cetera that you have used in determining your answers.
4. You may use a non-programmable calculator, unless stated otherwise.
5. If necessary, round off your answers to TWO decimal places, unless stated otherwise.
6. Diagrams are NOT necessarily drawn to scale.
7. It is in your own interest to write legibly and to present the work neatly.
8. Start the answer for each question on a NEW page, for example Question 1 – new page, Question 2 – new page.
9. 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.
10. 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.
11. 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>20</td>
</tr>
<tr>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>31</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>100</td>
</tr>
</tbody>
</table>

NOTE: An Addendum (Answer Sheet) is attached at the end of the question paper (refer to Question 4.6).
QUESTION 1

Mr Daniels wants to buy a house and applies for a bond at the local bank. He is told that banks will only approve a bond if the monthly repayments on the bond equal a maximum of 30% of the person's salary.

1.1 A house valued at R700 000 will cost Mr Daniels R8 470 per month in bond repayments.

What minimum amount must Mr Daniels earn monthly to qualify for the bond? (4)

1.2 Mr Daniels will have to pay a transfer duty to transfer the property into his name. Transfer duty costs are payable as follows:

<table>
<thead>
<tr>
<th>Up to R500 000</th>
<th>No transfer duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>From R500 000,01 to R850 000</td>
<td>Transfer duty is calculated at 5% of the value of the house above R500 000</td>
</tr>
<tr>
<td>Above R850 000</td>
<td>R25 000 + 8% of the value above R1 million</td>
</tr>
</tbody>
</table>

Use the table to calculate the transfer duty that Mr Daniels has to pay. (4)

1.3 The bank charges a security assessment levy for conducting an assessment of the property that a client wishes to purchase. This fee is R1 550 excluding VAT (Value Added Tax).

Calculate the security assessment fee that Mr Daniels will have to pay by adding the 14% VAT. (2)

1.4 The Deeds Office charges a fee for the registration of the title deeds and mortgage bonds according to the value of the house.

Use the table below to determine the Deeds Office registration fee that Mr Daniels will have to pay according to the value of the house.

<table>
<thead>
<tr>
<th>Value of property</th>
<th>Amount per registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to R80 000</td>
<td>R65</td>
</tr>
<tr>
<td>R80 001 – R150 000</td>
<td>R250</td>
</tr>
<tr>
<td>R150 001 – R300 000</td>
<td>R280</td>
</tr>
<tr>
<td>R300 001 – R500 000</td>
<td>R350</td>
</tr>
<tr>
<td>R500 001 – R1000 000</td>
<td>R500</td>
</tr>
<tr>
<td>Over R1000 000</td>
<td>R600</td>
</tr>
</tbody>
</table>

(2)
1.5 Finally, the bank charges a home loan initiation fee of R1 750 (inclusive of VAT) for starting the new home loan account. Calculate the hidden costs of the house.

\[
\text{Hidden Costs} = \text{transfer duty} + \text{security assessment fee} + \text{home loan initiation fee} + \text{Deeds Office registration fee}.
\]

(3)

1.6 Mr Daniels had to sell his car in order to have enough money for the deposit on his house. He bought the car in 2006 for R150 000. The value of the car depreciates at 12% per annum.

How much will he get for the car in 2012? Use the formula:

\[
A = P(1 - i)^n
\]

(5) [20]
QUESTION 2

Mary wants to open a play centre in her area and starts purchasing equipment that will be attractive to young children and parents.

2.1 One of the main attractions for children coming to any play centre is the slide:

The length of the steps of the slide is 1.7 m and the distance between the bottom of the steps and the bottom end of the slide is 2.8 m. The top of the steps is 1.5 m above the ground.

You may use the following diagram to help you solve the questions that follow:

2.1.1 Calculate \( x \), the distance on the ground from the bottom of the steps to the point below the top of the steps. Use the formula:

\[
x = \sqrt{(\text{length of steps})^2 - \text{height}^2}
\]

(5)
2.1.2 What is the length of the slide down which the children slide?

\[(\text{length of slide})^2 = (\text{Base of slide})^2 + (\text{height})^2\]  \hspace{1cm} (3)

2.1.3 Suppose a child takes 0.77 seconds to slide down the slide.

Use the formula \(\text{distance} = \text{speed} \times \text{time}\) to calculate the average speed of the child in metres per second. \hspace{1cm} (2)

2.1.4 Calculate the area of the metal plate that forms the slide if it is 55 cm wide. \hspace{1cm} (4)

2.2 On the property that Mary wants to use there is a shed. It has the following dimensions: 4,1 m long, 3,2 m wide and 2,4 m high. The area covered by the door and windows is 3 m².

2.2.1 Calculate the outside surface area of the shed, excluding the area covered by the door and windows.

\[
\text{AREA} = 2 \times (\text{length} \times \text{height}) + 2 \times (\text{breadth} \times \text{height}) + (\text{length} \times \text{breadth})
\]  \hspace{1cm} (5)

2.2.2 The total outside surface area of the shed needs to be painted with 2 coats of paint. One litre of paint covers 6 m². The paint is available in 5-litre buckets at R159 each and 1-litre cans at R40 each.

Calculate the lowest cost of painting the shed. \hspace{1cm} (5)

2.2.3 Calculate the volume of the shed. \(V = l \times b \times h\) \hspace{1cm} (3) \hspace{1cm} [27]
QUESTION 3

3.1 The Rovers Rugby Club ordered 38 new pairs of shorts for its players. Below are the sizes that were ordered:

30 ; 32 ; 30 ; 32 ; 30 ; 40 ; 42 ; 30 ; 42 ; 44 ; 34 ; 40 ; 40 ; 36 ; 36 ; 32 ; 40 ; 40 ; 36 ; 36 ; 40 ; 42 ; 44 ; 38 ; 38 ; 42 ; 38 ; 42 ; 38 ; 36 ; 34 ; 42 ; 40 ; 38 ; 44 ; 36 ; 42

3.1.1 What percentage of the shorts is available in size 34? (3)

3.1.2 What percentage of the shorts is bigger than 42? (3)

3.1.3 Determine the **mode** and the **median**. Which of the two gives a better idea of the general size of the players? (5)

3.2 What is the probability of selecting the following?

3.2.1 a size 40 (2)

3.2.2 a size 30 (2)

3.3 The treasurer at the club had to demonstrate the incoming season fees for the first three-quarters of the year to the executive. He came up with the two graphs below:

![Season fees graphs](image)

3.3.1 What possible trend do you notice with the incoming quarterly season fees? (2)

3.3.2 Calculate the mean monthly income for the club in the first nine months. (3)

3.3.3 The treasurer wants to show the executive that the season fees are coming in too slowly. Which graph must he use? Give a reason for your answer. (2) [22]
QUESTION 4

The Rovers Rugby Club decides to sell caps embroidered with the club's emblem to raise funds. They must pay the local mall R500 to trade on the premises. It costs the club R30 to have the caps manufactured.

The table below shows the cost of marketing the caps:

<table>
<thead>
<tr>
<th>Number of caps manufactured</th>
<th>0</th>
<th>30</th>
<th>50</th>
<th>90</th>
<th>120</th>
<th>B</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost</td>
<td>500</td>
<td>1400</td>
<td>A</td>
<td>3200</td>
<td>4100</td>
<td>4400</td>
<td>5000</td>
</tr>
</tbody>
</table>

4.1 Calculate the values of A and B. (4)

4.2 Determine the formula that allows us to calculate the cost of marketing the caps.

Use C to represent the cost and n to represent the number of caps. (3)

4.3 What would be the cost of marketing one cap? (2)

The caps are sold at R50 each. The table below shows the relationship between the number of caps sold and the income received:

<table>
<thead>
<tr>
<th>Number of caps sold</th>
<th>0</th>
<th>30</th>
<th>50</th>
<th>90</th>
<th>120</th>
<th>D</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost</td>
<td>0</td>
<td>1 500</td>
<td>2 500</td>
<td>C</td>
<td>6 000</td>
<td>7 250</td>
<td>7 500</td>
</tr>
</tbody>
</table>

4.4 Calculate the values of C and D. (3)

4.5 What formula can be used to represent table 2? (2)

4.6 Use the Addendum to sketch two line graphs to represent the tables above. (7)

4.7 How many caps must be sold to break even? Explain what this means. (3)

4.8 Determine the profit if 75 caps are sold. (3)

4.9 Determine the profit if 150 caps are marketed and 130 are sold. (4)
ANSWER TO QUESTION 4.6

*REMEMBER TO INCLUDE THIS PAGE WITH YOUR ANSWER BOOK*