FEEDBACK TUTORIAL LETTER

1st SEMESTER 2019

TEST 1

INTRODUCTION TO MATHEMATICS

ITM111S
<table>
<thead>
<tr>
<th>COURSE NAME:</th>
<th>INTRODUCTION TO MATHEMATICS (Business and Management)</th>
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</thead>
<tbody>
<tr>
<td>COURSE CODE:</td>
<td>ITM111S</td>
</tr>
<tr>
<td>DUE DATE:</td>
<td>23 March 2019</td>
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<tr>
<td>TIME:</td>
<td>1hr30</td>
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<tr>
<td>MARKS:</td>
<td>50</td>
</tr>
<tr>
<td>EXAMINER(s):</td>
<td>Mrs A. Sakaria, Ms Y. Shaanika, Mr I. Ndadi, Mr Simon Kashihalwa</td>
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<td></td>
<td>Mr R. Mumbuu</td>
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<tr>
<td>MODERATOR:</td>
<td>Mr G. Tapedzesa</td>
</tr>
</tbody>
</table>
| INSTRUCTIONS:             | 1. QUESTION 1 of this question paper entail multiple choice questions with options A to D. Write down the letter corresponding to the best option for each question.  
2. For QUESTION 2 show clearly all your calculations.  
3. All written work MUST be done in blue or black ink. |
| PERMISSIBLE MATERIALS     | 1. Non-programmable calculator may be used for this test |
| ATTACHMENTS:              | None                                                  |

This test memorandum consists of 2 pages excluding this front page
SECTION A [25 Marks]

Question 1
1.1 C
1.2 D
1.3 C
1.4.1 D
1.4.2 C
1.5 A
1.6 A
1.7 C
1.8 A

SECTION B [25 Marks]

Question 2

2.1.1 \( \sqrt{18} + \sqrt{98} \)
\[ \sqrt{9 \times 2} + \sqrt{49 \times 2} \]
\[ 3\sqrt{2} + 7\sqrt{2} \]
\[ 10\sqrt{2} \]

2.1.2 \( (3ac^2)^{-3} \times 2a^{-2} \)
\[ \frac{2}{(3ac^2)^3 \times 2a^2} \]
\[ \frac{2}{27a^3c^6a^2} \]
\[ \frac{2}{27a^5c^6} \]

2.1.3 \( \log_2 32 - \log_2 4^5 + \log_5 \sqrt[3]{625^5} \)
\[ = \log_2 2^5 - \log_2 (2^2)^5 + \log_5 (5^4)^\frac{5}{3} \]
\[ = 5 - 10 + 8 \]
\[ = 3 \]
2.2.1 \( a^4x - a^2x - a^3x^4 \)
\[ = a^2x(a^2 - 1 - ax^3) \]

2.2.2 \( x^2a - x^2b - ya + yb \)
\[ x^2(a - b) - y(a - b) \]
\[ (x^2 - y)(a - b) \]

2.2.3 \( x^2 - 16 \)
\[ (x + 4)(x - 4) \]

2.3 \( xy - (x - y)^2 + y \)
\[ = xy - (x^2 - 2xy + y^2) + y^2 \]
\[ = xy - x^2 + 2xy - y^2 + y^2 \]
\[ = 3xy - x^2 \]

2.4 \( T = 2\pi \frac{l}{\sqrt{MH}} \)
\[ T = 2 \left( \frac{22}{7} \right) \sqrt{\frac{315^3}{4(2)}} \]
\[ T = 2 \left( \frac{22}{7} \right) \sqrt{\frac{315^3}{4(2)}} \]
\[ T = 2 \left( \frac{22}{7} \right) \sqrt{\frac{315^3}{4(2)}} \]

\[ T = \frac{44}{7} \times \frac{55}{14} \]
\[ T = \frac{2420}{98} \]
\[ T = \frac{1210}{49} \]