



education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

TECHNICAL MATHEMATICS P1

JUNE 2024

MARKING GUIDELINES

Marks: 50

These marking guidelines consist of 5 pages.

NOTE:

- If the learner answered the question TWICE, mark the FIRST attempt ONLY.
- If the learner crossed out an attempt of a question and did not REDO the question, mark the crossed out question.
- Consistent Accuracy (CA) applies in all aspects of these guidelines.

QUESTION 1																
1.1.1	$\sqrt{16}$	√ Answer (1)														
1.1.2	$\sqrt{-16}$	√ Answer (1)														
1.1.3	$\sqrt[3]{-16}$	√ Answer (1)														
1.2	$\sqrt{16} < \sqrt{18} < \sqrt{25}$ $4 < \sqrt{18} < 5$ OR/OF Between 4 and 5	√√ End Points/ OR/OF √√ 4 and 5 (2)														
1.3	$7x^2 - 3x + 2 - (4x^2 + 3x - 5)$ $= 7x^2 - 3x + 2 - 4x^2 - 3x + 5$ $= 3x^2 - 6x + 7$	√ Method √ Add subtract like terms √ Simplification (3)														
1.4	$73 = 2^6 - 2^5 - 2^4 - 2^3 - 2^2 - 2^1 - 2^0$ $73 - 64 - 0 - 0 - 8 - 0 - 0 - 1$ <table border="1" style="margin: 10px auto;"> <tr> <td>2^6</td> <td>2^5</td> <td>2^4</td> <td>2^3</td> <td>2^2</td> <td>2^1</td> <td>2^0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> </tr> </table>	2^6	2^5	2^4	2^3	2^2	2^1	2^0	1	0	0	1	0	0	1	√ Method √ 1001001_2 AO (2)
2^6	2^5	2^4	2^3	2^2	2^1	2^0										
1	0	0	1	0	0	1										
1.5	$\begin{array}{r} 11111 \\ \times 1011 \\ \hline 11111 \\ 111110 \\ +1111100 \\ \hline 101010101 \end{array}$	√ Method √ Answer (2)														

1.6	$C = \frac{Q}{V}$ $= \frac{3 \times 10^{-4}}{300}$ $= \frac{0,0003}{300}$ $= \frac{1}{1000000}$ $= 0,000001$	✓ Substitution ✓ Simplify ✓ Answer (3)
[15]		
QUESTION 2		
2.1.1	$(3x - 4)(x + 8)$ $= 3x^2 + 24x - 4x - 32$ $= 3x^2 + 20x - 32$	✓ $3x^2$ ✓ $20x$ ✓ -32 (3)
2.1.2	$-5a(3 - 2a)^2$ $= -5a(3 - 2a)(3 - 2a)$ $= -5a(9 - 6a - 6a + 4a^2)$ $= -5a(9 - 12a + 4a^2)$ $= -45a + 60a^2 - 20a^3$	✓ $9 - 12a + 4a^2$ ✓ $-45a + 60a^2$ ✓ $-20a^3$ (3)
2.2.1	$x^4 - 1$ $= (x^2 + 1)(x^2 - 1)$ $= (x^2 + 1)(x + 1)(x - 1)$	✓ $(x^2 + 1)(x^2 - 1)$ Difference of 2 squares ✓ $(x + 1)(x - 1)$ ✓ $(x^2 + 1)$ in final answer (3)
2.2.2	$4x^2 + 12x$ $= 4x(x + 3)$	✓ Factor $4x$ ✓ $(x + 3)$ (2)
2.3.1	$\frac{x^2+x-12}{x^2-9} \times \frac{3x+9}{2x+8}$ $= \frac{(x+4)(x-3)}{(x+3)(x-3)} \times \frac{3(x+3)}{2(x+4)}$ $= \frac{3}{2}$	✓ $(x + 4)(x - 3)$ ✓ $3(x + 3)$ ✓ $(x + 3)(x - 3)$ ✓ $2(x + 4)$ ✓ Answer (5)
[16]		

QUESTION 3		
3.1	$2(xy^{-2})^3$ $= 2x^3y^{-6}$ $= \frac{2x^3}{y^6}$	✓ Denominator ✓ Numerator (2)
3.2	$-2a^0 \times b \div \frac{1}{b^5}$ $= -2(1) \times b \times b^5$ $= -2 \times b^6$ $= -2b^6$	✓ (1) ✓ $\times b^5$ ✓ law 2. adding b^{5+1} ✓ $-2b^6$ Answer (4)
3.3	$\frac{27n^{-3}m^{-2}}{81n^2m^{-3}}$ $= \frac{27}{81}n^{-3-2}m^{-2-(-3)}$ $= \frac{1}{3}n^{-5}m^1$ $= \frac{m}{3n^5}$	✓ $\frac{1}{3}$ Simplify/ ✓ Law 2 simplify ✓ Answer (3)
[9]		

QUESTION 4		
4.1.1	$3 \cdot 2^x = 96$ $\div 3 \quad \div 3$ $2^x = 32$ $2^x = 2^5$ $\therefore x = 5$	✓ Dividing by 3 ✓ Prime Factor 2^5 ✓ Answer (3)
4.1.2	$6 - 24x = 4x + 12 \quad \text{OR} \quad 6 - 24x = 4x + 12$ $-24x - 4x = 12 - 6 \quad \quad \quad 6 - 12 = 4x + 24x$ $-28x = 6 \quad \quad \quad -6 = 28x$ $\div -28 \quad \div -28 \quad \quad \quad \div 28 \quad \div 28$ $x = -\frac{3}{14} \quad \quad \quad x = -\frac{3}{14}$	✓ grouping liked terms/ ✓ $\div -28$ <i>or/of</i> $\div 28$ ✓ Answer (3)
4.2.1		✓ Not included -2 ✓ Included 6 (2)
4.2.2	$(-2; 6]$	✓ (-2 ✓ 6] (2)
[10]		