LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

SEKHUKHUNE SOUTH DISTRICT

GRADE 11

MATHEMATICS

TEST 1

MARCH 2023

MARKS: 50

TIME: 1 hour

This question paper consists of 4 pages including the cover page.

INFORMATION AND INSTRUCTION

1. This question paper consists of THREE questions.
2. Answer all questions.
3. Clearly show ALL calculations, diagrams, graphs etc. that you have used to determine your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use approved scientific calculator (non-programmable calculator and non-graphical), unless stated otherwise.
6. If necessary, round off answers to TWO decimal places, unless stated otherwise.
7. Write nearly and legibly.

QUESTION 1

1.1 Solve for x

1.1.1 $(3x + 4)(x - 2) = 0$ (2)

1.1.2 $5x^2 = 11x - 4$ (Correct to TWO decimal places) (4)

1.1.3 $\sqrt{2x + 7} = 4 - x$ (4)

1.1.4 $x^2 - x - 56 < 0$ (3)

1.2 Solve for simultaneously for x and y: (6)

$3^y = 81^{x+1}$ and $x^2 - 6x - 20 = y$

[19]

QUESTION 2

2.1 Simplify fully, WITHOUT using a calculator (3)

$$\left(\frac{1}{\sqrt[3]{p^2}}\right)^{-3}$$

2.2 If $y = \sqrt[6]{100\,000}$, WITHOUT USING A CALCULATOR, determine the value (4)
$\sqrt[3]{16} \times \sqrt[3]{625} \times \sqrt{10}$ in terms of y.

2.3 Determine the value(s) of k for which the equation $\frac{1}{k} = x^2 - x + 1$ where $k \neq 0$ (5)
has real roots.

[12]

QUESTION 3

DO NOT USE A CALCULATOR WHEN ANSWERING QUESTION 3.

3.1 Given: $tan\,\alpha = -\frac{9}{40}$ and $180° < \alpha < 360°$ (5)

Use a sketch to determine the value of $\sin\alpha + \cos\alpha$.

3.2 If $\cos 32° = k$, determine the values of the following in terms of k

3.2.1 $cos\,212°$ (2)

3.2.2 $sin(-328°)$ (3)

3.3 Prove that : $\sqrt{1 + cos(90° + \theta) . sin(180° - \theta)} = cos\,\theta$ (3)

3.4 Simplify to a single trigonometric ratio: (6)

$sin(-60°).cos\,180° - tan^2 135°.sin\,270° - tan\,300°.cos\,210°$

[19]

TOTAL : 50