Synopsis and Examples Representative of the Math Placement Test

The Math Placement Test consists of 100 questions divided into 20 sections as outlined below. There are 5 choices offered for each answer and the candidate fills in the appropriate space on a computer-readable answer sheet. The questions given here are intended to indicate the average level of difficulty within each section. CANDIDATES WRITING THE PLACEMENT TEST WILL NOT USE CALCULATORS.

1 - 5. **Fractions: Preliminaries**

This section contains questions about the lowest common denominator of three fractions of the form $\frac{1}{n}$ where $n \leq 20$, finding equivalent fractions and factoring into prime factors.

$$\text{Write in lowest terms: } \frac{28}{52}$$

6 - 10. **Fractions: Addition, Subtraction**
The heading is self explanatory.

$$1\frac{2}{3} + 2\frac{5}{6} =$$

11 - 15. **Fractions: Multiplication and Division**
Again, the heading is self explanatory.

$$4\frac{1}{7} \div 3\frac{1}{4} =$$

16 - 20. **Decimals:**
This section contains questions involving the four arithmetic operations on decimal fractions.

$$3.0 \times 1.2 \times .003 =$$

21 - 25. **Percents:**
Questions in this section deal with changing percents to decimals and vice versa, and calculating given percents of given numbers.

$$20\% \text{ of } 75 =$$

26 - 30. **Order of operations:**
The concept that multiplication and division are performed before addition and subtraction, but otherwise in the order that they occur unless otherwise indicated by parentheses should be part of the curriculum of elementary schools.

$$45 \div 9 - 5 \times 3 =$$

31 - 35. **Laws of Signs:**
This segment of the test evaluates students' knowledge of sums, products and quotients of signed numbers.

$$-(-4) \div (-2) + 6 =$$

36 - 40. **Equations:**
The section contains 5 linear equations (equations in one variable) which the candidate is asked to solve.
$$\text{If } 4(x - 2) - 3x = 5(2 - x), \text{ then } x =$$

41 - 45. **Laws of Exponents:**
These questions deal with the rules for simplifying expressions that contain combinations of powers.
$$(2t^5)^3 =$$

46 - 50. **Negative Exponents:**
Like the last section with the inclusion of a negative.
$$(b^3)^{-4} =$$

51 - 55. **Formula Rearrangement:**
Students need to demonstrate in this section that they can apply the rules of algebraic manipulation in the rearrangement of formulae.

$$\text{If } p = \frac{q - r}{s}, \text{ then } r =$$
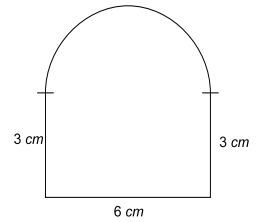
56 - 60. **Algebraic Fractions:**
This section contains questions concerning arithmetic operations on algebraic fractions.

$$\frac{2x}{3y} + \frac{4z}{y} =$$

61 - 65. **Mensuration:**
Five geometric figures are displayed and candidates are asked to determine perimeter, area or volume of the figures.

Find the perimeter of the entire figure in the diagram.

3 cm   3 cm

6 cm

66 - 70. **Quadratic Equations:**
To answer these questions, a candidate would need to know the zero product property and the quadratic formula

Solve for x: $x^2 - x = 6$

71 - 75. **Graphing:**
The students are given three graphs, each with a single curve or series of points and asked to answer 5 questions about the graphs or about simple graphing concepts.

What is the y-intercept of the line represented by $y = -\frac{x}{3} + \frac{1}{2}$?

76 - 80. **Algebraic Fractions II:**
Candidates are asked to manipulate rational expressions and reduce to lowest terms, find the lowest common denominator or simplify.

Simplify: $\left(\frac{2}{xy} + \frac{1}{x} \right) \div \frac{3}{xy}$

81 - 85. **Radicals and Fractional Exponents:**
The candidate is asked to show facility in the manipulation of roots and fractional powers of algebraic expressions.

$$4^{\frac{1}{2}} \times \sqrt[3]{27}$$

86 - 90. **Logarithms:**
The five questions of this section require knowledge of the fundamental properties of logarithms.
Simplify: $\log 5 + \log 4$

91 - 95. **Trigonometry:**
To answer these five questions, students need the rudiments of trigonometry on the unit circle.

2π radians $=$ (Answer in °)

96 - 100. **Questions ("Word Problems"):**
This last section requires that students be able to translate information given in simple English phrases, sentences and paragraphs into mathematical symbols and solve the stated problem.

Five less than three times one seventh of a number is 4. Find the number.