

University of the State of New York

Examination Department

134TH EXAMINATION

ADVANCED ARITHMETIC

Monday, January 27, 1896—9:15 a. m. to 12:15 p. m., only

100 credits, necessary to pass, 75

Answer 10 questions but no more. If more than 10 questions are answered only the first 10 of these answers will be considered. Division of groups is not allowed. Give each step of solution, indicating the operations by appropriate signs. Use cancelation when possible. Reduce fractions to lowest terms. Express final result in its simplest form and mark it *Ans.* Each complete answer will receive 10 credits.

- 1 Define *involution*, *compound proportion*, *true discount*, *repetend*, *root*.
- 2 Reduce $\frac{7}{12}$ and $\frac{11}{5}$ to their least common denominator. Give a complete demonstration of each step of the process.
- 3 If $\frac{3}{4}$ of an article is sold for $\frac{7}{8}$ of the cost of the article what is the gain or loss per cent? Give demonstration.
- 4 Reduce the repetend $.046\dot{4}8$ to a common fraction in its lowest terms. Give reason for each step.
- 5-6 Explain in full the process of finding the least common multiple of two numbers.
- 7 What common fractions can be exactly expressed as decimals? What ones will give repetends? Give proof in each case.
- 8-9 Prove that the true discount of any sum of money is the true present worth of its bank discount for the same time and rate.
- 10 Show why 8 is a factor of the product of two consecutive even numbers.
- 11 The diameter of a cylindric vessel is 8.6 centimeters and the depth 9.4 decimeters; how many liters of water will it hold and how many kilos will this water weigh?
- 12 Find the face of a bank note payable in 90 days whose proceeds are \$500, discount at $1\frac{1}{2}\%$ a month.
- 13 If a 9% dividend is paid on stock bought at 40% discount what per cent does the investment pay?
- 14-15 A merchant sends \$10,246.50 to his agent to invest in flour after deducting $3\frac{1}{2}\%$ of the sum invested for his commission; how many barrels of flour can he buy at \$5.50 a barrel?