

## Examination Papers.

### SECOND-CLASS PROFESSIONAL EXAMINATIONS.

Papers set at the Examinations held in Toronto and Ottawa Normal Schools, December, 1884.

#### XIII.—ALGEBRA—METHODS.—Examiner—J. A. McLELLAN, LL.D.

1. Outline a lesson on substitution with a view to solving questions of which the following is an example:—

$$\text{Find the value of } 2x^3 + 401x^2 - 199x^3 + 399x^2 - 602x + 212 \text{ when } x = -201.$$

2. A class having learned something about an identity, symmetry, and the factors of  $x^3 + y^3$ , give a series of questions to lead them to establish this identity:—

$$8(a+b+c)^3 - (a+b)^3 - (b+c)^3 - (c+a)^3 = 3(2a+b+c)(a+2b+c)(a+b+2c).$$

3. Teach the principles which are applied in resolving the following into factors:—

$$(1) 7x^2 - xy - 6y^2 - 6x - 20y - 16.$$

$$(2) (a+b+c)(ab+bc+ca) - abc.$$

4. A class has learned that  $a^3 + b^3 + c^3 - 3abc$  is (1) symmetrical, (2) has a linear divisor, (3) which gives a quadratic quotient,—show how by questioning alone, you would lead them to the possession of corresponding facts in reference to  $a^3 + b^3 + c^3 + 3abc$ , &c., and  $a^3 - b^3 - c^3 - 3abc$ .

5. Give a first lesson on Simple Equations:

- (1) Of one unknown quantity.
- (2) Of two unknown quantities.

#### XIV.—BOTANY AND ZOOLOGY.—Examiner—JOHN SEATH, B.A.

1. State the main differences between plants and animals.

2. Compare the appearances presented in transverse sections of a stem of an oak, a palm, and a tree-fern. How do these stems differ in mode of growth?

3. Explain the following terms: protoplasm, pinnate, root-stock, filament, stipule, stomata, raceme, cyme, achene, and drupe.

5. Classify the following plants, stating the main points of resemblance and difference:—  
Catnip, Dandelion, Sweet Briar, and Shepherd's Purse.

5. State the main differences between Vertebrates and Invertebrates.

6. Contrast the circulatory and respiratory systems of Fish and Mammals.

7. Name and classify the animals from which the following substances are obtained: cheese flannel, ivory, pearls, and sepia

#### XV.—PSYCHOLOGY (HOPKINS).—Examiner—J. A. McLELLAN, LL.D.

1. Recount briefly points of difference

(1) Between *Organized* and *Unorganized* bodies.

(2) Between *Man* and the lower animals.

2. "Is *Mind* something distinct from *Matter*?" Outline the argument on this question.

3. "When the occasion arises the mind involves ideas by the *necessity* of its own constitution." Enumerate, with brief comments, these "necessary ideas."

4. Write briefly on (1) Sensation; (2) Perception; (3) "A *percept* not a thing."

5. State and briefly illustrate the Primary Laws of Association.

6. Give the substance of Hopkins' remarks on *Induction*.

#### XVI.—ARITHMETIC—METHODS.—Examiner—J. A. McLELLAN, LL.D.

1. Why is it necessary to use objects in giving the first lessons in number?

What advantage is there in a symmetrical grouping of the objects?

Why is it necessary to repeat the "intuitions"?

1. Indicate the main points in teaching the number six.

3. State explicitly the points on which you would base your teaching of "Short Division," e.g.,  $96 \div 6$ ,  $972 \div 6$ .

4. State in detail how you would connect the teaching of fractions with the pupil's knowledge of the "Simple Rules."

5. Make clear, as to a class, the following:—  
 $\frac{3}{4} = 3 \div 4$ ;  $\frac{1}{2} = 2 \div 4 = 3 \div 6$  &c.;  $\frac{1}{2} + \frac{1}{3} = 5 \div 6$ ;  $\frac{1}{2} \times \frac{1}{3} = 1 \div 6$

#### XVII.—GRAMMAR—METHODS.—Examiner—J. J. TILLEY.

1. "Grammar is the art of speaking and writing a language correctly."

Discuss this.

2. Give notes of a teaching lesson on

(1) Case,

(2) Connectives,

(3) Participles,

(4) Verbs of complete and incomplete predication,

(5) Complex sentence.

3. Having taught the adjective and the adverb, show how you would teach the adjectival and adverbial phrase and clause.

4. Explain your method of teaching the analysis of the following stanza:—

"Perhaps in some neglected spot is laid  
Some heart once pregnant with celestial fire;  
Hands that the rod of empire might have sway'd,  
Or wak'd to ecstasy the living lyre."

### COUNTY MODEL SCHOOLS.

Examinations set on December 8th and 9th, 1884.

#### I. EDUCATION—METHODS.

1. Outline your method (i.) of teaching an introductory lesson in reading to a primary class, (ii.) of assigning a reading lesson to a third class.

2. Give notes of the *matter* and *method* of a lesson on the physical features of North America.

3. Give notes of a language lesson to a junior class.

4. Give your methods of teaching oral and written composition to first, second, and third classes.

5. Give an introductory lesson on the parts of speech.

6. Having taught the adjective and the adverb, explain your method of teaching the adjectival and adverbial phrase and clause.

7. State, with illustrations, the exact order you would follow in a lesson or lessons preliminary to the formal teaching of fractions.

8. Give your reasons for preferring number-pictures in imparting first ideas of numbers.

Show in detail how you would teach the number Six.

#### II. EDUCATION—THEORY.

1. State and briefly discuss some of the principal elements of Governing Power.

2. School Regulations should be *Few, General, Popular, Practicable, Educational*. Briefly comment on these principles.

3. Enumerate, with reasons, what you regard as INJUDICIOUS school punishments.

4. Granting that corporal punishment is sometimes necessary, state the rules that ought to be observed in its infliction.

5. State what you regard as some of the chief duties of teachers (1) to Themselves, (2) to One Another, (3) to Pupils.

6. Enumerate and briefly discuss some of the principal *Objects of Questioning*.

7. Enumerate and discuss, as fully as you can, some of the fundamental principles of education.

#### III.—SCHOOL LAW.

1. Give the law with reference to the granting of second-class certificates.

2. Explain fully how to keep

(i.) The Daily Register.

(ii.) The General Register.

3. What is the law with reference to:

(i.) Agreement between teachers and trustees.

(ii.) The Superannuation Fund.

(iii.) Distribution of government and municipal grants to schools.

(iv.) Teacher's absence from school on account of sickness.

4. State the duties and powers of teachers and trustees with reference to

(i.) Suspension of a pupil,

(ii.) Expulsion.

THE Smith's Falls schools are now in a flourishing condition, says the *Independent* of that town. Work is going on well and the attendance is far ahead of the average for some time past. We understand the roll in the High School department has increased about 51 per cent. since the beginning of the term.

AN account of how Mark Twain works and plays is given most interestingly in a recent issue of the *Critic*.

Mr. Samuel L. Clemens goes to his work every morning about half-past eight, and stays there until called for dinner, about five o'clock. He takes no lunch or noon meal of any sort, and works without eating, while the rules are imperative not to disturb him during this working period. His only recreation is his cigar. He is an inveterate smoker, and smokes constantly while at his work, and, indeed all the time, from half-past eight in the morning to half-past ten at night, stopping only when at meals. . . . It is not his literary habit to carry one line of work through from beginning to end before taking up the next. Instead of that, he has always a number of schemes and projects going along at the same time, and he follows his first one and then another, according as his mood inclines him. Nor do his productions come before the public always as soon as they are completed. . . . At times Mr. Clemens shuts himself up in his working-room and declines to be interrupted on any account. . . . He keeps a pair of horses, and rides more or less in his carriage. He is an adept on the bicycle on which he travels a great deal, and he is also an indefatigable pedestrian.

AT the Sala dinner in New York, the Hon. C. M. Depew spoke of the popularity of America with the professional people of other countries, and jocosely said:—

"Like the Chinese, who come to this country to hoard and not to stay, the English lecturers carry away all our surplus and leave us nothing but ideas. Just run your minds over the list of those who have visited us. There is Serjeant Ballantine, who brought with him jokes so old that they fell within the penal code, and carried home good stories that have since convulsed the British Empire. Then there was Herbert Spencer, who came to us dyspeptic, green, hungry, emaciated, (laugh-ter) and looking like Pickwick gone to seed, and lectured us on overwork. Look at Matthew Arnold, the apostle of sweetness and light, who came to teach and was taught. He was taught the ingenuity and complexity of the Lyceum Bureau system of conducting public entertainments, and doubtless that knowledge was what hastened his departure from our shores. It was in a western town that Matthew Arnold was introduced to an audience something in this style: 'Ladies and gentlemen,—Next week we shall have here those beautiful singers, the Johnson sisters. To-night we will have the pleasure of hearing Mr. Arnold, the great philosopher, who has passed most of his life in India, and who wrote that beautiful production, the *Light of Asia*.'" (Laughter.)