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OFFICIAL.

The following regulations supersede those formerly in force respecting the JOURNAL OF EDUCATION :—

I.—The Journal of Education shall hereafter be published semi-annually, in the months of April and October respectively, and shall continue to be the medium of Official notices in connection with the Department of Education.

II.—The Journal will be furnished gratuitously, according to law, to each Inspector, Chairman of Commissioners, and Board of Trustees, and will be supplied to other parties wishing it at the rate of ten cents per copy.

III.—Each Secretary of Trustees is instructed and required to file and preserve the successive numbers of the Journal for the benefit of his fellow Trustees and the Teacher or Teachers of his section, and their successors, and to inform his associates in office and the Teacher or Teachers of its receipt, so soon thereafter as may be convenient.

Examination Papers

Set for Candidates for Provincial Licenses,

JULY, 1880.

Academic Licenses (Grade A).

ALGEBRA.

1. Define *Ratio* and *Proportion*, and compare Euclid's definition of Proportion with that used in Algebra.

2. Given $\frac{1}{1-\sqrt{1-x^2}} - \frac{1}{1+\sqrt{1-x^2}} = \frac{\sqrt{3}}{x^2}$ to find x.

3. The sum of two numerical quantities divided by their difference gives the same quotient as if the greater quantity were divided by the less. Find the quotient.

4. If the number of combinations of n things taken 5 at a time be the same as when taken 10 at a time, what will be the number when taken 2 at a time?

5. A commences a piece of work alone, and labors for two-thirds of the time that B would have required to perform the entire work. B then completes the job. Had both labored togethes it would have been completed two days sooner, and A would have performed only half what he left for B. Required the time in which they would have performed the work separately.

6. Expand $(1-x)^{\frac{5}{6}}$ to five terms.

7. What conclusion are you warranted in drawing if when two numbers are successively substituted for the unknown quantity in an equation, they give results with contrary signs? Prove your answer.

CHEMISTRY.

1. (*a*) Give symbol, combining weight, and properties of Nitrogen, mentioning any of the sources of the gas, and any process of preparing it. (*b*) Name the oxides of Nitrogen with their chemical formulæ, giving their properties and manner of preparing any one of them.

2. Mention the principal ammonic salts, giving their formulæ, and comparing them with the corresponding potassic salts.

3. State fully the sources from which Lime, as an artificial manure, may be obtained, best mode of application, and its effects upon soils.

4. Describe the peculiar qualities of Platinum and practical results flowing therefrom.

5. What gas is produced when alcohol is heated with excess of strong hydric sulphate? Give the equation expressing the reaction.

6. Describe a process of rendering hard water soft.

NATURAL PHILOSOPHY.

1. If two forces, acting at right angles to each other be in the ratio of 1 : $\sqrt{3}$ and their resultant be 10 lbs, find the forces.

2. Which will support the greater weight, a power acting horizontally, or the same power acting parallel to the inclined plane? Demonstrate the answer.

3. Explain the action of the siphon. What are the conditions of its effective working?

4. If the weight of a cubic inch of mercury be 7.8 oz, what is the pressure of air on a square inch when the mercury stands at 29.5 inches?

5. Enunciate completely in two statements the law of Reflection of Light, and show that both the statements are essential to a complete definition.

6. A person from a window 20 ft. high observes in a mirror placed 12 ft. from the foundation of the house the top of a spire 100 ft. high. Required the distance of the observer from the spire.

GEOMETRY.

1. If the square described upon one of the sides of a triangle be equal to the squares described on the other two sides of it, the angle contained by those sides is a right angle.

2. The difference between the squares on any two straight lines is equal to the rectangle contained by the sum and difference of those lines.

3. If from the vertical angle of a triangle three straight lines be drawn, one bisecting the angle, the second bisecting the base, and the third perpendicular to the base, show that the first lies, both in position and magnitude, between the other two.

4. Name four systems, of three lines each, which lines, when drawn from similar points in the perimeter of a triangle, meet in a point within the triangle; and prove that the perpendiculars from the angles of a triangle to the opposite sides meet in a point.

5. If the vertical angle of a triangle be bisected by a straight line, which also cuts the base, the segments of the base must have the same ratio which the other sides of the triangle have to one another.

6. Find a point in the base of a right-angled triangle produced such that the line drawn from it to the angular point opposite to the base shall be to the base produced as the perpendicular to the base itself.