THE

JOURNAL OF EDUCATION

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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 offics and the Teachers or Teachers of its receipt, so soon thereafter as may be convenient.

Examination Papers,

Set for Candidates for Provincial Licenses,

JULY, 1881.

Academic Licenses, (Grade A.)

CHEMISTRY.

1. Define Chemistry, Element, Oxide, Acid, Alkali, Chemical Equation, Molecule, Atom.

2. Give the equation represented by the reaction when H Cl is prepared from H_2SO_4 and Na Cl.

3. What is the constitution of matter according to the Atomic theory? Shew the bearing of the Atomic theory on each of the laws of chemical combination.

4. What is Nordhausen acid, and how is it prepared?

5. Write a note on salt as a manure.

6. Give the characteristics of a metal. What is an alloy? In what respects may alloys differ from the metals of which they are composed? Illustrate.

NATURAL PHILOSOPHY.

1. Show that as the angle between two forces is increased their resultant is diminished, and prove that if two forces be represented by two diagonals of a parallelogram their resultant will be represented by a line equal to twice one of the sides of the parallelogram.

2. Find the numerical value of the acceleration when in a quarter of a second a velocity is produced which would carry a body over 2 ft. in every third of a second.

3. State the characteristic difference between solids and fluids in relation to the transmission of pressure, and explain clearly what is meant by the equal transmission of pressure by fluids in all directions.

4. Describe the construction and action of the common pump; state the limit to its action and the cause of the same.

5. Define the terms Principal Focus, Optical Centre, and Principal Axis of a Lens.

6. Explain generally the mode of the formation of images.

GEOMETRY.

1. Show how to describe a rectangle equal to a given square and having one of its sides equal to a given straight line.

2. If from any point without a circle two straight lines be drawn, one of which cuts the circle, and the other touches it, the rectange contained by the whole line which cuts the circle and the part of it without the circle must be equal to the square on the line which touches it.

3. Inscribe a square in a given semi-circle.

4. Define locus and find the locus of the vertices of all right angled triangles which can be described upon the same hypothenuse.

5. Similar triangles are to one another in the duplicate ratio of their homologous sides.

6. On a given base describe a triangle, having a given vertical angle, and one of its sides double of the other.

7. Every solid angle is contained by plane angles, which are together less than four right angles.

ALGEBRA.

1. Resolve into factors $1 - a$, $x^2 + y^2 + z^2 + 2xy - 2xz - 2yz$, and resolve x into two equal and also into two unequal factors.

2. If p be the difference between any given fraction and unity, and q the difference between its reciprocal and unity, show that the product of p and q is equal to their difference.

3. There are three consecutive numbers such that the sum of their cubes is equal to 16 2-7 times the product of the two higher numbers; find the numbers.

4. Given $\frac{\sqrt{a+x}}{\sqrt{x}} + \frac{\sqrt{a-x}}{\sqrt{x}} = \sqrt{\frac{x}{b}}$ to find the values of x.

5. Explain the difference between combinations and permutations; and if there are 7 chemical elements which will unite with each other how many ternary compounds can be made from them, how many binary?

6. What is meant by an imaginary root? Show that while impossible in an *avithmetical* sense, 8 may be divided *algebraically* into two parts whose product is 18.

First-Class Licenses, (Grade B.)

BRITISH HISTORY.

1. Write a brief sketch of English History during the period of Danish occupation.

2. Mention the chief political and social changes introduced into England by the Normans.

3. Give the provisions of the Treaty of Troyes.

4. Of the decisive battles fought by the English during the last nine centuries, name the *five* whose consequences you regard as most important to England, assigning reasons by tracing results.

5. Mention the chief constitutional changes or parliamentary enactments during Queen Victoria's reign.