The old man rose with alacrity.

"Give me that broken cup," he said. "There is a little spring around here where the water trickles from the rocks."

When he returned he wiped his lips surreptitiously. His companion detected the action.

"Did you drink first? How very rude!" She viewed him sternly, and carefully wiped the edges of the cup before putting it to her lips.

"It's nothing to a steaming cup of coffee," observed the old man, evasively.

"Or a nice, hot cup of tea. How I wish I had one," she echoed.

When they finished their repast the old lady rose a little unsteadily, cramped from her uncomfortable posture upon the ground. She arranged the broken crockery upon the cupboard shelves, dreamily smiling as she did so. Then she turned with a brisk and energetic air:

"We must hurry now and get our house built. Did you ever make one?"

(To be Continued.)

Examination Questions.

NEW GLASGOW, N. S. HIGH SCHOOL.—JUNE 29TH, 1885.

GEOMETRY, BK. 1.

1. Define figure, adjacent angle, rhombus, trapezium, circle. Distinguish clearly between a *definition*, an *axiom*, and a *postulate*. Explain the terms proposition, problem, theorem, corollary, hypothesis, enunciation.

2. Enunciate those propositions in which Euclid proves the equality of two triangles in every respect. State one case that he omits. Prove Prop. B, and deduce from it an important corollary.

3. In given straight line find a point equidistant from two given points; 1st on same side of it; 2nd on opposite side of it.

4. The three angles of every triangle are equal to two right angles. If triangles be formed on the sides of a polygon of n sides by producing the alternate sides to meet, the sum of the vertical angles is $2n-8$ right angles.

5. A B C is an isosceles triangle having the equal angles at B & C. B F and C F are drawn bisecting the angles B & C, and intersecting in F. Show that the angle B F C is equal to the sum of the vertical angle and one of the basal angles.

6. It is required to describe a triangle equal to a given parallelogram, having one of its angles equal to a given angle.

7. Establish the converse of the following:—The complements of the parallelogram, which are about the diameter of any parallelogram, are equal to one another.

8. That triangle, in which the squares on two of the sides are together equal to the square on the third, is right angled. What kind of a triangle is that whose sides are (a) 7, 6, 5; (b) sq. root of 125, 10, sq. root of 225; (c) 8, 6, 4?

Time—1 hour 45 minutes.

Teachers' Examinations.

EDUCATION DEPARTMENT ONTARIO, JULY EXAMINATIONS, 1885.

PHYSICS.

SECOND CLASS TEACHERS.

Examiner—J. C. GLASHAN.

1. Two forces, one of 5 lbs., the other of 10 lbs., act in directions making with each other an angle of 120°. Find the magnitude of their resultant.

2. Prove that if the angle between the lines of action of two forces be decreased their resultant will be increased

3. A rod, $M N$, weighing 8 oz., is found to balance about a point 8 in. from M. A weight of 4 oz. is then fastened to the rod at M; what will be the distance from M of the point about which the rod will now balance?

4. What is meant by the term *specific gravity*?

Describe any instrument for determining the specific gravity of liquids and explain the principle of its action.

5. What is the difference between the total pressure of the air on the floor and that on the ceiling of a room 20 ft. long by 14 ft. wide by 10 ft. high?

6. "We have strong reasons for thinking that heat is really a kind of vibratory motion." (*Stewart*; p. 62.)

"We can not only change actual energy into heat but we can change heat back again into actual energy." (*Stewart*; p. 105.)

Show that these statements are inconsistent. Which of them is correct? State correctly what was intended to be expressed by the other.

7. "The latent heat of steam is 537." Explain the meaning of this statement.

What becomes of all this heat; what work does it do?

8. "You see how it is possible, by making and breaking contact of a wire with the pole of a battery, to move a magnetic needle 1,000 miles away."

Briefly explain how it is possible.

N. B.—Candidates who take Latin, or French, or German, as an option will omit questions 1 to 5 of this paper.

CHEMISTRY.

SECOND CLASS TEACHERS.

Examiner—JOHN SEATH, B.A.

1. Describe experiments to illustrate the *general properties* of acids, bases, and salts. Classify, if possible, the following under these heads, assigning your reason in each case:—

H_2S, KHO, CO_2, $CaCO_3$, H_2CO_3, CaO.

2. Describe and explain fully one process by which you would disinfect a badly smelling drain.

3. State in each case the simplest mode of determining when a receiver is full, in the preparation of Ammonia, Chlorine, Carbon Dioxide, and Sulphur Dioxide. How would you transfer each of these gases from one receiver to another?

4. Describe experiments to show the nature and properties of Sulphur. How much air is needed to burn completely 8 oz. of Sulphur?

5. Fully describe and explain the following experiments:—

(*a*) Some strong Sulphuric Acid is poured on a piece of zinc, and after the chemical action has ceased, water is carefully added.

(*b*) Carbon Dioxide is passed for some time through lime-water. A portion of the clear solution thus obtained is boiled; another portion of it is exposed for an hour or so to the air, and, to another portion, lime-water is added.

(*c*) Some distilled water is shaken up in each of the full receivers mentioned in 3 above:

(*d*) Some Chlorine gas is exposed to the air in an open receiver.

(*e*) One volume of Hydrogen is mixed with one volume and a half of Chlorine, and the mixture exposed to the action of diffused sunlight.

6. You are given a powder known to be Carbonate of Ammonia, Phosphate of Soda, Nitrate of Lead, or Chlorate of Potash. Describe the simplest mode of determining which it is.

ENGLISH LITERATURE.

SECOND CLASS TEACHERS.

Examiner.—JOHN SEATH, B. A

NOTE.—200 marks constitute a full paper. In valuing the answers, marks will be deducted for bad literary form.

1. State concisely the influences that affected Literature about the beginning of the nineteenth century, illustrating your answer by reference to "The Lady of the Lake" and "Rip Van Winkle."

2. What personal characteristics of the authors appear in "The Lady of the Lake" and "Rip Van Winkle"? refer to one passage in exemplification of each.

3. Quote the "Coronach" (Canto III), or Ellen's "Song" (Canto I).

4 'Now, yield thee, or by Him who made
The world, thy heart's blood dyes my blade!"—