

if necessary) in a , b , and c respectively. AB and ca (produced if necessary) meet in b'' , prove that $Ab : bC :: Ab'' : Cb''$.

EDUCATION.

1. Distinguish between mental assimilation and *cram*.

2. Show how you would make questioning efficient as an instrument of teaching as well as testing.

3. Indicate fully the teacher's equipments as to the following: (a) Personal qualifications. (b) Habits. (c) Studies. (d) School Room and Furniture.

4. Show how you would teach Geography. (1) For mere information. (2) As an instrument of intellectual discipline.

5. Discuss the value of false Orthography as a means of teaching spelling, intimating whether you approve or disapprove, and why?

6. Distinguish between teaching Reading as a vocal art and a source of intellectual culture, indicating what is included in each division.

7. "Nature presents to the inquirer first the concrete then the abstract, first things then signs for words or things; first facts and phenomena then laws and principles; first wholes and then parts or collections of wholes."—*Wickersham*.

To the study of what subjects are these principles particularly applicable, and in what way? Answer fully.

SCHOOL LAW.

1. In what way may the office of School Trustee become vacant?

2. What Government and Municipal grants are given to schools, and how are these grants distributed?

3. What must be done (i.) in case of difference of opinion between School Auditors on any matter in the school accounts, (ii.) if both Auditors object to the lawfulness of any expenditure?

4. Give in full the law relating to the Superannuation of Teachers.

5. What powers are vested (i.) in Town-

ship Councils, (ii.) in County Councils, to change the boundaries of school sections?

6. What is the law relating to—

(i.) The collection of school rates?

(ii.) Attendance of non-resident children?

(iii.) Contract between a trustee and the corporation of which he is a member?

(iv.) Payment of teachers' salaries?

(v.) Expulsion of a child from school?

7. Give a short synopsis of the School Act of 1879.

CHEMISTRY.

1. Explain the principles on which the determination of atomic weights is based. One part by weight of hydrogen is combined with three parts by weight of carbon in marsh-gas, with six parts by weight of carbon in olefiant-gas, and with twelve parts by weight of carbon in acetylene. Again, one part by weight of hydrogen is combined with eight parts by weight of oxygen in water, and eight parts by weight of oxygen are combined with three parts by weight of carbon in carbonic anhydride, and with six parts by weight of carbon in carbonic oxide. Why is the atomic weight of carbon taken as 12 instead of as 6 or as 3?

2. What is understood by the theory of atomicity? What atomicity or quantivalence do you assign to nitrogen, arsenic, iron, and copper respectively, and why? Give the formulæ of the most important compounds which these elements form with hydrogen, chlorine, oxygen, and sulphur respectively.

3. What is a *compound radicle*? Give examples. Select the compound radicles from among the following: KCl , H_3N , H_4N , HO , KHO , SO_2 , SO_3 .

4. Ten grains of air are passed at a very high temperature over an excess of carbon. What product is formed, and what is the approximate weight of it?

5. What compounds of sulphur are there which in their constitution and general reactions resemble the corresponding compounds of oxygen? How is sulphur now recovered from alkali-waste? What are the