8.—SCIENCE (CHEMISTRY, &c.), C.

(Only *five* questions to be answered.)

1. (*a*) State the common name and color of each of the following chemical substances: KCl I, KI, ($Zn S O_4 + 7H_2 O$), ($Cu S O_4 + 5H_2 O$), ($Fe SO_4 + 7 H_2 O$), $Fe_3 O_4$, $Fe_2 O_3$, ($2 Fe_2 O_3 + 3 H_2 O$), Fe S, $Fe S_2$.

(*b*) Distinguish between the effects of the following substances when allowed to fall on clean white paper wood, or cloth: Sulphuric acid, hydrochloric acid, nitric acid, silicic a id and ammonia

2. 13 grams of Zn are dissolved in HCl. What is (*a*) the weight and (*b*) the volume of the gas produced?

3. (*a*) If table vinegar should be suspected to be acidulated with some sulphuric acid, describe how you would test the truth of the suspicion (*b*) Write a note on the carbohydrates.

4 Discuss with any illustrations the halogen elements (*a*) as to their similarities, (*b*) as to their differences.

5. Discuss (*a*) magnesium and its compounds, or (*b*) lead and its compounds, or (*c*) the developing of a photographic plate.

6. (*a*) Give the scale of hardness used in testing or describing minerals (*b*) What minerals are found in granite? (*c*) Discuss the relationship of granite and gneiss.

7. Explain the terms: Concretionary, Diatomaceous earth, metamorphic, obsidian, stratification, cleavage. Name the different kinds of Nova Scotian rocks you have seen.

(The following may be substituted for 6 and 7 above.)

6. Give some idea of the *inorganic matter* removed from the soil by crops—(any special crop may be selected)—so as to explain the action of special fertilisers.

7. (*a*) Discuss the relation of soil to the geological formation of the country; or (*b*) the most practicable manner of advancing agricultural industries in the country, or (*c*) the special breeds of animals most profitable to be raised on Nova Scotian farms.

9.—DRAWING AND BOOK-KEEPING, C.

(Values need not be expected in this paper for answers in which the *Drawing* and *Writing* do not exhibit evidence of successful training of the *hand* to do *neat* and *accurate* work.)

1. Draw on the scale of one hundred to an inch, the triangle whose base is 468, whose perpendicular height is 325, and one of whose sides is 379; and find by measurement the remaining side and angles.

2 Draw a cylinder resting on the centre of the upper face of a cube of about equal height but twice its diameter, as seen when below the level of the eye and a little to the right of the front

3. Draw (*a*) any design, or (*b*) any object connected with your "science" studies.

4. (*a*) What accounts of the Ledger are closed into "Profit and Loss?" (*b*) When the "Balance per Inventory" and the "Balance of the Account" fall on the same side, what is its significance. Mention Ledger Titles which may have these two balances as a rule. Is "Cash" one of them

5. (*a*) Write out a short sample of an Account Sales, showing payment of freight, sale of consignment on credit, charge for storage and commissions, and closing of the account. (*b*) Journalize each item in this series of transactions.

10.—ARITHMETIC, C.

1. Divide $1986 50 among A, B and C, in the proportion of $2.3\dot{3}$, $1.1\dot{5}$ and $.5\dot{2}\dot{4}$ respectively.

2 (*a*) The interest on a certain sum at simple interest is $360, and the discount $340 what is the sum? (*b*) What will $50 amount to in 4 years at 6 per cent. compound interest?

3. If 6 per cent. be gained by selling a horse for $132 50, how much per cent. is lost by selling him for $115?

4. A person invests $6825 in 6 per cent. stock at 91; he sells out $5000 stock when it has risen to 93¾, and the remainder when it has fallen to 85. How much does he gain or lose in the transaction?

5. (*a*) A room is 22 ft. 6 in. long, 20 ft. 3 in. wide, and 10 ft. 9 in. high. Find the cost of carpeting the room at $1 20 a square yard, and of papering the walls at 20 cents a square yard. (*b*) Bought 10 metres of cloth at 2 francs per metre, and sold it at 50 cents per yard. What was gained or lost by the transaction?