Carbon—27.27%, $\frac{27.27}{12}=2.26$; 1.

Oxygen—72.73%, $\frac{72.73}{16}=4.54$; 1.

Formula CO_2.

In the above two oxides of carbon the number of atoms of carbon are equal, but the number of atoms of oxygen are 1; 2 therefore multiple.

gas. One contains hydrogen, another oxygen, another carbon monoxide, another chlorine, and another sulphur dioxide. Describe fully the tests you would apply to distinguish each gas."

2. That the portion of the paper consisting of problems not exceed 10%.

3. That considerable care be taken that the entire paper be strictly on the work prescribed.

4. If no practical test be given that no distinction be made between the

6. (b) At 2895°a and 748m press. vol.=7.5l.

At 273°a and 760 m press. vol. $7.5\times\frac{273}{289.5}\times\frac{748}{760}=6.9$l.

(a) 22.4l of ammonia at N. T. & P. weighs 17 gms.

6.9l of ammonia at N. T. & P. weighs $17\times\frac{6.9}{22.4}=52$ gms.

(c) NO.

7. (b) Burn a jet of hydrogen in chlorine; or (c) pounding the two together; or (e) burn a jet of hydrogen in air, or pass electric spark through a mixture in a endiometer. [(a) and (d) not in the text.)]

8. (Not in the text.)

The examiners would offer the following suggestions:

1. That the questions be very clearly and definitely worded, i.e. No. 1 (a) might be started thus: "Describe the preparation and collection of carbon monoxide, giving a diagram of the apparatus and explaining the chemical actions involved." Also (b) of the practical test thus: "You are given five bottles each containing a different

theoretical and practical parts of the paper, but that the theoretical questions be so worded as to reveal a candidate's knowledge of practical work. For example, 1 (a) as worded above reveals a candidate's knowledge of practical work just as well as (d) of the practical test.

5. That some questions be so worded as to bring out the candidate's power of reasoning. For example, a question on preparation of quicklime, and the hardening of mortar, or on bleaching as accomplished by chlorine as contrasted with sulphur dioxide.

6. To the teachers the examiners would emphasize the importance of making carefully constructed diagrams.

In the industries, specialization is the rule, but during this introductory period, it would seem undesirable for pupils to specialize much in their work: rather, from the theoretical standpoint; this introductory preparation should be broad, and as far as possible, lead to fundamental forms of skill and comprehension of large principles.

All attempts to make the subjects of liberal education yield vocational efficiency are destined to fail, because, to a large extent, such efforts will result in depriving them of their true significance as factors in a liberal education.