4. How may the following gases be collected for examination:—Hydrogen, Carbonic anhydride, Chlorine and Nitrogen trioxide?

5. Name the oxides of Carbon and of Sulphur respectively.

6. What is the effect of bringing non-metallic oxides into contact with water? Name exceptions.

7. Compare the elements Chlorine, Bromine and Iodine, and mention one exception to their serial characters.

8. Name the three forms of Carbon, and mention a gaseous element which exists in more than one condition.

CHEMISTRY—Honors.

PROFESSOR SMYTH (TRINITY).

1. Describe briefly experiments which have led to the adoption of the molecular theory of matter.

2. Describe briefly experiments which suggest our conceptions of an atom.

3. Compare the Nitrogen atom with the Phosphorus atom by stating experimental facts.

4. By what tests or general characters would you identify Carbonic anhydride, Silica, Sulphur dioxide, Hydrogen sulphide, and Hydrogen monoxide.

5. What do the symbols NH_3, NH_4Cl, PCl_3, PCl_5 suggest with reference to the valency of Nitrogen and Phosphorus?

6. What is the action on Iodine of (*a*) Nitric Acid, (*b*) Caustic Potash?

7. Sketch briefly a scheme of classification of the elements by which a connection is shown to exist between their atomic weights and properties.

8. From a knowledge of the serial properties of Iodine, Bromine and Chlorine, mention certain chemical and physical characters of the element Fluorine and its compounds. F = 19.

9. Write symbols of corresponding oxacids of Silicon, Phosphorus, Sulphur and Chlorine.

PHYSICS.

PROFESSOR SMYTH (TRINITY).

(Three-fourths of the total marks will be considered a maximum.)

1. Define uniform velocity.

A railway train moves at the rate of 36 kilometres per hour; what is its rate in metres per second?

2. Define uniform acceleration. Give an illustration from nature.

3. The weight of a cannon ball on the earth is 50 lbs., but on a certain asteroid only 5 lbs.; would its mass be altered? Explain.

4. State Newton's Second Law of Motion. Why will a weight dropped from a height fall to the eastward of the plumb line?