An elementary study of coal, charcoal, and coke. The important properties of the oxides of carbon. Combustion. Structure of flame as shown in a candle and in a Bunsen burner.

Elements and compounds. The combining proportions of elements by weight and of gases by volume. The meaning and use of symbols and formulæ (not including equations). Easy calculations.

The nature and general properties of oxides, acids, bases, and salts.

The most important properties of carbon, sulphur, and phosphorus, of sulphur-dioxide, phosphorus-pentoxide, sulphuric acid, chlorine, hydrochloric acid, ammonia, and nitric acid. The bleaching action of chlorine compared with that of sulphur-dioxide.

An elementary study of the metals iron, magnesium, zinc, copper, and lead, with special reference to the oxides and to the interaction of these metals with the common acids. Reduction of metallic oxides.

An elementary experimental study of chalk, blue vitriol, common salt, sal ammoniac, and saltpetre.

The determination in easy cases of the weight of the materials required to yield or to combine with a given weight of a given substance.

The candidate will be expected to show that he has acquired by actual experiment, observation, and measurement his knowledge of the matters set forth in the sections of the above syllabus selected by him; but he will not be expected to show that he is familiar with other than the simple apparatus and appliances commonly used in connection with elementary instruction in practical physics in primary or secondary schools. He will be required to forward, before the date of examination, a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the syllabus.

(4.) *Elementary Home Science.*—Two papers, (*a*) and (*b*):—

(*a.*) British and metric systems of measurement: Measurement of the volume of solids and liquids. Use of the balance, measuring-glass, pipette, and U tube. How to find the relative density of solids and liquids. Flotation; principle of Archimedes. Principle and use of hydrometer, lactometer. The atmosphere; Boyle's law, barometer, and suction-pump. Expansion by heat of solids, liquids, and gases. Thermometers. Conductors and non-conductors. How to find the melting-points of solids and the boiling-points of liquids. Transference and absorption of heat.

Simple experiments illustrating chemical action, the difference between chemical compounds and mixtures and between physical and chemical change. Solution, crystallization, emulsion. Simple experiments involving air and the light thrown on the properties of its constituents thereby. Oxidation and the formation of oxides. The occurrence in nature of carbon and its oxides. Combustion and incandescence. Simple experiments illustrating the properties and composition of water; the important properties of water and of hydrogen. Natural waters; hard and soft water; chief impurities of water; distillation; ice and steam.

An elementary study of sulphuric acid, of caustic soda and of chalk, common salt and blue vitriol as examples of acids, alkalis, and salts respectively.

(*b.*) Ventilation and hot-water systems: Appliances for heating rooms; the Bunsen burner and its application to gas-stoves. Appliances for lighting rooms; wax and safety matches; the gas-meter and its readings.

Simple experiments illustrating (*a*) the properties (1) on which the use for domestic purposes of the undermentioned materials is based, (2) which render the use of them under certain conditions objectionable or dangerous: Iron (cast iron, malleable iron, steel; tinned, galvanized, and enamelled plate), copper, brass, aluminium, silver, lead, and cleansing-agents in common use (soap, whitening, soda, ammonia, benzine, emery, &c.); (*b*) the properties of the more important materials of organic origin in common use for domestic purposes, such as fats, oils, glycerine, cane-sugar, starch, gluten, albumen, alcohol, acetic acid, and yeast. Saponification, fermentation, coagulation. Simple experiments and investigations bearing on the following topics: (1) The composition and action of baking-powder; (2) changes in foods as the result (*a*) of the application of heat, (*b*) of the action of the agents of digestion; (3) principles on which the various methods of cooking food are based; (4) the temperatures at which the various culinary processes are best carried out; (5) the proportion of water in different foods; (6) comparison of the weight of foods before and after cooking.

The candidate will be required to forward before the date of examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work based on the above syllabus.

(5.) *Geography.*—The requirements will be based on the programme of work prescribed for Standard VI in the Regulations for the Inspec-