

required to recognize and describe parts of the animal-body from specimens or photographs. He will further 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.

(9.) *Elementary Geology*.—The composition, form, size, and heat of the earth. Divisions of rocks: igneous, sedimentary, metamorphic. Rock structure: lamination, stratification, false bedding, cleavage, foliation, joints, columnar jointing. General characters and composition of the following groups of minerals, with special reference to their New Zealand localities: quartz, opal, and chalcedony; feldspars; micas; hornblendes and augites; carbonates of lime and magnesia; oxides and sulphides of iron. The general characters of the following types of rocks and a knowledge of their occurrence in New Zealand: granite; diorite; gabbro; rhyolite; andesite; basalt; volcanic glasses, pumice, and volcanic dust; conglomerates, sands, and sandstones; clays, shales, and slates; limestones and coals; rock-salt and gypsum; gneiss and schists. Texture of igneous and of sedimentary rocks. Agents producing changes in the earth's surface: volcanoes, earthquakes. Disturbed strata; dip, strike, outcrop, contorted and overthrown strata, anticlinal and synclinal axes, faults, slickensides, dykes. Denuding agents and their work: rain, running water above and below ground, the sea, frost and frozen water, wind, animal and vegetable agencies. Deposition of sediment. Landscape: plains, valleys, formation of escarpments, lateral and transverse streams, lakes, destruction of valleys, mountains, effects of joints and faults, dry valleys. Economic geology: water, artesian wells, mineral and hot springs; coal and oil; building-stone, roofing-slate, sands, lime and cement, clay; road-metal, flagstone; ornamental stone; grindstones; fuller's earth, salt, phosphate soils, metals, lodes and veins. Recognition of New Zealand rocks and minerals named above from specimens or descriptions.

A candidate will be expected to show a first-hand acquaintance with the matters herein contained, and to this end will be required to forward before the date of the examination a certificate in the prescribed form that he has carried out satisfactorily a course of practical work, including work in the field, based on the above syllabus.

(10.) *Elementary Botany*.—The candidate will be required to show that he has acquired his knowledge of the following topics by observation, investigation, and experiment:—

The organs of flowering plants, their arrangement and principal modifications; their functions, so far as can be ascertained by observation and simple experiments.

The general arrangement, distribution, and structure of plant-tissues so far as they can be studied with the aid of a good hand magnifier. The structure of fruits; the various kinds of fruits.

The main phenomena of the life-history (excluding microscopic processes) of common flowering plants; germination; establishment and growth; comparison of different types of germination; the mechanism of pollination; fruit and seed dispersal. An elementary knowledge of the chemical constituents of plants and of the sources from which the plant obtains them.

Simple qualitative and quantitative experiments, illustrating the nutrition of plants, the conduction of water and food substances in the plant, storage of reserve material, respiration and transpiration. Adaptation of plants to their surroundings and to cold and drought; protection against animals. Comparison of creeping plants, climbing plants, rosette-forming plants, grass-like plants, shrubs and trees; plant societies. The identification of common trees at different seasons by means of various parts and organs, such as buds, bark, leaves, &c.

The description and dissection of commonly occurring native and introduced flowering plants (technical descriptions will not be demanded).

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

(11.) *Elementary Zoology*.—The candidate will be expected to show that he has as far as possible acquired his knowledge of the following topics by observation and investigation: A general knowledge and comparison of the external features (head, limbs, hair, feathers, teeth, beaks, hoofs, claws, &c.), the skeleton (with special reference to adaptations to support, locomotion, and prehension of food), and mode of life (*e.g.*, habitation, locomotion, food, self-protection, adaptation to surroundings) of commonly occurring mammals (cat, dog, rabbit,