

Special: (1.) The general morphology of the cells, tissues, and organs of plants. (2.) The physiology of plants, including the knowledge of simple experiments. (3.) The structure and life-history of the following types—Nostoc, Pleurococcus, Volvox, Vaucheria, Closterium, a stonewort, a diatom, Hormosira or any fucoid, any red Alga, Mucor, Saprolegnia, Penicillium, Peziza, Agaricus, any lichen, Marchantia, any moss, Selaginella, a conifer, liliium. (4.) The classification of plants and the characters of the chief subdivisions of the vegetable kingdom. The principal characters of the following orders: Liliaceæ, Amaryllidaceæ, Irideæ, Orchideæ, Gramineæ, Salicineæ, Polygoneæ, Ranunculaceæ, Cruciferae, Geraniaceæ, Umbelliferae, Myrtaceæ, Rosaceæ, Leguminosæ, Labiatae, Scrophularineæ, Solanaceæ, Primulaceæ, Campanulaceæ, Compositæ.

A candidate in Botany will be required to forward to the Education Department, before the examination, a certificate on the form supplied by the Department that he has gone through a sufficient course of practical work in the subject occupying at least eighty hours.

- (19.) *Zoology*.—General: (1.) The general structure and life-history of the following organisms, to illustrate the biological phenomena and laws, referred to in the succeeding sections: Haematococcus, Spirogyra, Mucor or other mould, yeast, bacteria, Amoeba, a ciliate infusorian, Hydra or any hydroid polyp, frog. (2.) General structure and physiology of the cell; the general facts of nuclear division and cell division. (3.) General structure of the simple tissues in animals; arrangement of tissues into organs and systems of organs. (4.) General phenomena of nutrition, circulation, respiration, and excretion in animals. (5.) Elementary physiology of muscle and nerve. (6.) General phenomena of reproduction, sexual and asexual, in animals. (7.) General phenomena of development in animals. (8.) Principles of classification. (9.) Origin of species, heredity and variation, struggle for existence, use and disuse, degeneration, rudimentary and vestigial organs, modifications for protection and aggression, natural selection, reproduction of varieties, connection between ontogeny and phylogeny. (10.) The bearing of the main facts of geographical and geological distribution on the theory of evolution.

Special: (1.) The general characters of the following phyla: Protozoa, Porifera, Coelentera, Platyhelminia, Annelida, Echinoderma, Arthropoda, Mollusca, Chordata. (2.) The structure and life-history of the following types: Sea-anemone or any actinozoön, starfish, fluke, tape-worm, earthworm, crayfish, cockroach or any insect, a lamellibranch, snail or any gastropod, a simple ascidian, amphioxus, a dogfish, frog, rabbit. (NOTE.—The skull of the dog may be studied in place of that of the rabbit.) (3.) The mode of formation of the germinal layers in a hydroid, starfish, earthworm, crayfish, amphioxus, frog, bird, rabbit, and the mode of formation of the embryonal membranes in the bird and rabbit. (4.) The life-history of typical insects, such as fly, bee, moth.

A candidate in zoology will be required to forward to the Education Department, before the examination, a certificate on the form supplied by the Department that he has gone through a sufficient course of practical work in the subject occupying at least eighty hours.

- (20.) *Physiology and the Structure of the Body*.—The chief differences between animals and plants, especially as regards nutrition. The animal cell and its more important modifications. Structure of bone and of cartilage; the principal bones of the human skeleton, their arrangement and functions; structure of the principal joints. Muscles, their structure, mode of attachment, and functions, with a knowledge of the principal muscles that give form to the human body. The structure and functions of the vocal organs. The alimentary tract and the functions of alimentation. The lymphatic system. The heart and the circulatory system in general, including the physical composition and functions of the blood. Respiration and the respiratory organs. Glands, especially those concerned in alimentation; secretion in general; excretion and excretory organs. Structure and functions of the kidneys. The skin and its functions. A general knowledge of the central nervous system, with a knowledge of a few of the principal nerves and of the principal forms of nerve-endings; afferent and efferent nerves; reflex action and nerve