

measure; the exponential values of the sine and cosine; the usual series for determining π ; and the summation of trigonometrical series.

(c.) *Differential and Integral Calculus*.—Differentiation and integration of functions; expansion of functions in series; limiting values of indeterminate forms; maxima and minima values of functions of one or of two independent variables; the change of the independent variable; the chief applications of the differential and integral calculus to the geometry of plane curves and of solids of revolution; and differential equations.

(d.) *Mechanics*.—As defined for the degree of Bachelor of Arts, with the addition of statics treated analytically, and dynamics of a particle.

(e.) *Physics*.—Any one of the following branches:—(1.) *Heat*.—The elementary theory of heat, including the kinetic theory of gases and thermodynamics. (2.) *Light*.—Geometrical optics to a first approximation, and the undulatory theory of light treated mathematically. (3.) *Astronomy*.—Elementary astronomy, with calculation and spherical problems; the elementary parts of the lunar theory.

(4.) CHEMISTRY AND EXPERIMENTAL PHYSICS. — (Two papers at least.)—(a.) *Chemistry*.—Any one of the following branches: 1. Organic Chemistry. 2. Metallurgy and Mineral Chemistry. 3. Chemistry of Manufactures and Agriculture. (b.) *Electricity and Magnetism*.—The general subject, and full acquaintance with all instruments used in the ordinary and ocean telegraphy.

Instead of paper (b) the candidate may take the two following papers:—(c.) *Sound and Light*.—The parts prescribed for the Pass Examination for the degree of Bachelor of Arts, treated fully and practically; together with the colours of thin plates, circularly and elliptically polarized light, and rotatory polarization. (d.) *Heat and Radiant Heat*.—The parts prescribed for the Pass Examination for the degree of Bachelor of Arts, together with elementary thermodynamics, and practical work in calorimetry.

The candidate will be required, on presenting himself for examination, to furnish to the Supervisor a certificate from a teacher of chemistry that he has passed a practical examination in chemical analysis in all its branches; and to produce, to the satisfaction of the Examiner, the results obtained in some original investigation or research in chemistry or experimental physics.

(5.) NATURAL SCIENCE.—(Two papers.)—One of the following branches (A or B):—

A. *Geology, Mineralogy, and Palæontology*.—Classification and distribution of formations; a detailed knowledge of mineralogy, lithology, and palæontology.

NOTE.—The division of this subject into two papers will be left to the discretion of the Examiner.

B. *Biology*.—(a.) The general principles of biology, as for the degree of Bachelor of Arts, but treated much more fully. (b.) One of the following:—(1.) *Zoology*.—A detailed knowledge of the anatomy, taxonomy, and distribution of some one of the following groups of the Animal Kingdom, and especially of its representatives in the New Zealand Fauna: 1. *Protozoa* and *Porifera*; 2. *Cœlenterata*; 3. *Vermes*; 4. *Echinodermata*; 5. *Mollusca*; 6. *Crustacea*; 7. *Insecta*; 8. *Pisces*; 9. *Aves*; 10. *Mammalia*. (2.) *Botany*.—A detailed knowledge of the structure, taxonomy, and distribution of some one of the following groups of the Vegetable Kingdom, and especially of its representatives in the New Zealand Flora: 1. *Algæ, Fungi, and Lichenes*; 2. *Muscinæ*; 3. *Vascular Cryptogams*; 4. *Gymnosperms*; 5. *Monocotyledons*; 6. *Incompletæ and Corollifloræ*; 7. *Thalamifloræ, Discifloræ, and Calycifloræ*.