

the lungs; (b) the physical principles involved; (c) the relations of intra-thoracic and intra-pulmonary pressure in both phases of respiration.

5. *Intestine*: (a) Structure—gross and microscopic of the upper third of the small gut; (b) Digestion in the same.

6.—Write upon *one* of the following:—Structure and functions of (a) spinal cord; (b) ear; (c) larynx.

PHYSICS AND CHEMISTRY.

Examiners..... PROF. GIRDWOOD AND RUTAN.

1. How are the intensity and quantity of heat and electricity measured?
2. What is meant by the "Dew Point"? How may it be determined?
3. Describe and trace out the action of a galvanic current on a solution of Sulphate of Copper, using two electrodes of copper.

4. How is the atmospheric pressure measured? What causes variation? The sp. gravity of Chloroform is 1.52; what would be the average height of a Chloroform Barometer?

5. Give Avogadro's law and the law of diffusion of gases. Illustrate each with examples.

6. Explain fully the relations between acids, bases and salts. Classify acids.

7. Give equations showing a mode of preparation of:—(a) Hydrochloric acid; (b) Hydrogen sulphide; (c) Sulphur dioxide; (d) Nitric oxide; (e) Nitric acid.

8. Write a short synopsis of the chemistry of sulphur.

BOTANY.

Examiner..... I. P. PENHALLOW, M.A., Sc.

1. Describe fully the structure and functions of a prothallus, and show what plants exhibit the highest development of this body.

2. State as fully as you can, the distinguishing features of (a) an endogen; (b) an exogen.

3. Describe fully the reproductive process in (a) *Fucus vesiculosus*; (b) *Selaginella*.

4. Give a detailed account of the anatomy of a leaf, and show how such organs are removed from the tree on which they grow.

5. Give a detailed account of the distinguishing characteristics of (a) Saprophytes; (b) Parasites; (c) Chlorophytes.

6. Describe the principal characteristics of the chief divisions of the vegetable kingdom.

7. Give a concise account of the nature and sources of plant food.

N.B.—Special importance will be attached by the Examiners to the use of diagrams and references to experiments witnessed or performed by the candidates.