

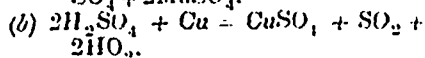
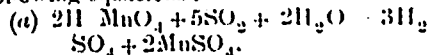
Final Examination, Department of Pharmacy, University of Toronto.

The following are the questions submitted at the recent examinations for the degree of Phm. B. at the final examination, Department of Pharmacy, University of Toronto:

PRACTICAL CHEMISTRY.

Examiner—JOHN MUNRO, B. A.

1. Explain fully the meaning of the following equations:



2. "The hydrates of Tin have both acid and basic properties." Give equations for chemical reactions which illustrate this statement.

3. Write equations of methods for the separation of:

- Arsenic from Mercury.
- Copper from Cadmium.
- Aluminium from Chromium.
- Zinc from Manganese.
- Barium from Magnesium.

4. A solution is known to contain a Lead, a Silver or a Mercurous Salt. How would you determine which of these it contains?

5. Illustrate by equations the reactions of:

- Hot sulphuric acid with metallic Silver.
- Lead sulphide with Nitric acid.
- Stannous chloride (in excess) with Mercuric chloride in solution.
- Copper sulphate with Potassium ferrocyanide in solution.
- Arsine (AsH_3) with Silver nitrate in solution.
- Ammonium sulphide with Ammonium chloride in solution.
- Ferrous sulphate with Potassium permanganate and Sulphuric acid in solution.
- Alcohol with Potassium bichromate and Hydrochloric acid in solution.

6. One gramme of a Copper ore, when dissolved, is precipitated by Hydrogen sulphide, and the precipitate, Cupric sulphide, is found to weigh one gramme. Find the percentage of Copper in the ore, and the volume of Hydrogen sulphide, measured at $17^\circ C.$ and 770 mm. Bar. , required for the precipitation of the Copper in 10 grammes of such ore.

THEORETICAL CHEMISTRY.

Examiner—JOHN MUNRO, B. A.

1. Define the laws illustrated by the compounds of Sulphur and Chlorine which have the following percentage composition:

Sulphur, 47.49%, 31.13%, 18.11%.

Chlorine, 52.51%, 68.87%, 81.56%.

Give other illustrations of these laws.

2. Explain and illustrate the statement, that Chromium forms three series of compounds resembling those of Magnesium, Aluminium, and Sulphur respectively.

3. Describe methods of preparation of Iodine, Nitric acid, Mercurous chloride, and Sodium bicarbonate. Give the physical and chemical properties, and the uses of these bodies.

4. Give an account of the preparation and properties of the principal Hydrides.

5. Mendelejeff, in his classification of the elements, places Oxygen, Sulphur, Selenium, and Tellurium in the same group of elements. Assign reasons for this classification.

6. Write a short account of the chemistry of Copper, or of Arsenic.

7. Show how the Empirical formula, the Molecular formula, and the Structural formula of Acetic acid can be determined. Upon what assumptions are Structural formulae based.

8. Write equations, illustrating the preparation of Ethane, Butyl alcohols, Propionic acid, Oxalic acid, Glycol, and Aniline.

9. Compare the reactions of Alcohol with those of Phenol.

10. Give a brief account of the Amines and Amides or of the Mercaptans.

PRACTICAL PHARMACOLOGY.

Examiner—J. T. FOTHERINGHAM, B. A.
M. B., M. D., C. M.

1. Identify and name the microscopic specimens marked 1, 2, 3 and 4.

2. Name the gross specimens marked A, B, C, D and E.

3. Oral.

BOTANY.

Examiner—T. MCRAE, B. A.

1. Describe the minute structure of a typical leaf, and give the principal structural modification of leaves.

2. Give the histological structure of a typical vegetable cell, with the principal points in its development and reproduction.

3. What are the special characters of the natural orders, Leguminosae, Liliaceae and Compositae?

4. Define the terms: (a) species, (b) fruit, (c) pollination, (d) phyllotaxy, (e) root. Write short descriptive notes on (a) styles, (b) stomata, (c) fibrovascular bundles.

5. Saprophytic and Parasitic Plants. Define, give examples of each, and describe their peculiarities.

6. Fertilization. Define and describe how brought about, with the various means which help "cross-fertilization."

7. Give an account of respiration as it exists in the vegetable kingdom.

MATERIA MEDICA, ETC.

Examiner—J. T. FOTHERINGHAM, B. A.,
M. B., M. D., C. M.

1. Give source, natural order, habitat, chief constituent and medicinal use of Adeps Laniæ Hydrosus, Hydrastis Rhizoma, Jaborandi, Cascara Sagrada, Senna, Ecballii Fructus, Santonica, Manna, Digitalis Folia and Galla.

2. Give mode of preparation of Camphora.

3. Describe Gentiane Radix and Caryophyllum.

4. Give at least one distinguishing mark of each of these leaves: Matico, Coca, Jaborandi.

5. Name preparations and doses of Scilla.

6. Give drugs and botanical sources from which the following principles are obtained: Emodin, eserine, cathartic acid emetine, heberine, pelosine, arbutin, sparteine, bassorin, saponin.

7. Give a very brief account of the considerations governing dosage in any given patient.

8. Mention chief channels of elimination of drugs from body.

PHARMACY.

Examiner—CHAS. F. HEERER, Ph. G.,
Phm. B.

1. *Pharmaceutical Assaying*: (a) Outline a practicable method for determination of alkaloid in a tincture or fluid extract of a plant-drug (assuming the native alkaloidal salt to be a tannate) fixed oil being also an extracted constituent. (b) State alkaloidal requirements for official Citrate of Iron and Quinine. (c) Give method of assay.

2. *Alcohol*: (a) Mention the official simple alcohols. (b) Explain difference between Absolute Alcohol, Rectified Spirit and Proof Spirit. (c) Given commercial alcohol, sp. gr. 0.820, containing 91% absolute alcohol by weight; how much shall be used to make two Imperial pints of spiritus Tenuior, and how much water?

3. State the conditions governing the proper storing of the following, giving reasons in full: (a) Santoninum, (b) Syrupus Ferri Iodidi, (c) Spt. Ætheris Nitrosi, (d) Æther Purus, (e) Hydrargyrum cum Creta, (f) Liquor Chlori, (g) Oleum Amygdale Amaræ, (h) Potassii Permanganatis.

4. (a) Mention the properties of a model pill mass. (b) What are essential features to perfect manipulation in addition to the selection of a proper excipient? (c) On what grounds should pill-varnishing be condemned? (d) What is keratin, and why is it used in pill-coating? (e) Mention a superior coating, having the same object in view, and state method of application.

5. Describe methods of manipulation essential to the exhibition of each of the following in pill form: (a) Potassium Iodide. (b) Creosote. (c) Camphor. (d) Silver Oxide. (e) Potassium Permanganate.

6. *Spiritus Ætheris Nitrosi*. (a) State method of preparation. (b) Give reasons for use of each ingredient. (c) Indicate the resulting reaction by equation. (d) State pharmacopœial requirements as to strength. (e) Outline method of testing its strength, indicating reactions. (f) Mention its incompatibles.