

ONTARIO COLLEGE OF PHARMACY.

Junior Examinations, December, 1898.

PHARMACEUTICAL LABORATORY.

Examiner: CHAS. F. HENDERSON, Ph. G., Phm. B. (Tor.)

Time allowed, Two hours.

1. Prepare 100 grams of strong solution of lead subacetate in accordance with the following formula :

Liquor Plumbi Subacetatis Fortis, P.B.

Lead acetate. 48.750

Lead oxide, in powder.. 34.375

Distilled water. 213.000

Will make of finished solution, 250.

Heat the distilled water until it boils, and dissolve in it the lead acetate. Add the lead oxide gradually and boil gently for thirty minutes, keeping the lead oxide suspended continually. Finally, filter the resulting solution and make it weigh 100 grams.

Bottle the liquid, label (using Latin title), and hand to the examiner.

2. Determine the specific gravity of the liquid in two-ounce bottle handed you.

Report on strong solution of lead subacetate.

State the amount of each ingredient used :

(a) Lead acetate. (b) Lead oxide. (c) Distilled water.

(d) Illustrate by means of an equation the chemical change which takes place in preparing this solution.

Report on specific gravity determination :

(e) Quantity of solution used, both weight and volume.

(f) Weight of an equal volume of water.

(g) Specific gravity.

Exhibit figures in all the calculations required.

N.B.—Neatness of work, order in arrangement, and cleanliness of working desk and outfit, will enter as important factors in your ratings.

ANALYTICAL CHEMISTRY.

Examiner: GRAHAM CHAMBERS, B.A., M.B.

Time allowed, Two hours.

1. Detect the base and acid in substances marked "A" and "B."

2. Detect the acid in substance marked "C."

3. Detect the base in substance marked "D."

4. Write equations illustrating the ac-

tion of hydrogen sulphide upon (a) Lead nitrate, (b) Chlorine, (c) Zinc sulphate.

5. Write equations illustrating the action of hot sulphuric acid upon (a) Carbon, (b) Potassium bromide, (c) Copper.

6. Write equations illustrating the action of dilute sulphuric acid upon (a) Barium oxide, (b) Ferrous sulphide, (c) Magnesium.

7. Describe experiments showing how you would distinguish :

(a) Solution of chlorine from a solution of hydrogen peroxide.

(b) Nitrous oxide from oxygen.

(c) A nitrite from a nitrate.

PHARMACY.

Examiner: CHAS. F. HENDERSON, Ph. G., Phm. B.

Time Allowed, Two and One-half Hours.

1. METRICAL SYSTEM.—Give the derivation of (a) the unit of linear measure ; (b) the unit of weight ; (c) the unit of capacity. State the equivalents of the following in customary weights and measures ; (d) gram, (e) liter, (f) meter.

2. What are the approximate metrical equivalents for : (a) grain, (b) fluid ounce, (c) inch. How many cubic centimeters are represented by (d) a liter, (e) a centiliter.

3. Add the following and state the number of (a) kilos, (b) av. lbs. represented by their sum :—475 dekagrams, $7\frac{1}{2}$ kilos, $2\frac{1}{4}$ myriagrams, 736 decigrams, 460 milligrams, 3 hectograms and 34 centigrams.

4. SPECIFIC GRAVITY.—(a) Describe the hydrostatic balance, and (b) mention its utility. (c) What factor is required and invariably determined by experiment, in order to ascertain the specific gravity of every substance ; (d) how is this determined in the case of a substance like silver ?

5. What is the specific gravity of the following B. P. substances :—(a) *Acidum Hydrochloricum*, (b) *Spiritus Rectificatus*, (c) *Liq. Ammonie Fortis*, (d) *Liq. Plumbi Subacetatis Fortis*, (e) *Glycerinum*, (f) *Aether Purificatus*.

6. State the percentage strength of (a) Rectified Spirit, (b) Solution of Ammonia, (c) Purified Ether, (d) Chloroform. (e) What is the specific gravity of a water-soluble substance weighing 3.755 grams, that weighs in purified ether (minimum sp. gr.) 7.505 grams.

7. EXTRACTION.—(a) Define ; (b) name the processes which it includes. (c) Explain the theory of exhaustion as exhibited in percolation, and (d) show why

plant drugs cannot be exhausted by maceration. (e) Give tests for exhaustion. (f) In what cases is maceration preferred to percolation ; (g) Why are drugs dampened previous to packing for percolation ?

8. 225 fluid ounces of official Alcohol, 60 p.c., are wanted, how much alcohol, 90 p.c., and water are to be mixed to furnish this amount ?

9. (a) Define Evaporation-in-vacuo, and (b) describe apparatus required. (c) State advantages of this over other methods of evaporation. (d) Describe a properly constructed water-bath, and state object of its use.

10. SYRUPUS FERRI IODIDI.—(a) How is it prepared ; (b) how should it be stored ; (c) why should it not be dispensed when yellow in color, what is its (d) strength ; (e) its dose ?

11. Give two methods for preparing Granular Effervescent Salts, and mention the usual constituents of such mixtures.

12. Potassium Hydroxide is soluble in two parts of alcohol, 90 p.c.; a saturated alcoholic solution weighs 400 Grams and has sp. gr. 0.975 ; (a) what weight of salt is contained in the solution, and (b) what is its percentage strength ; (c) what is the percentage strength of an aqueous saturated solution of Ammonium Chloride ?

CHEMISTRY AND PHYSICS.

Examiner: A. V. SCOTT, B.A., M.D., C.M.

Time Allowed, Two Hours.

1. Nitrogen, phosphorus, arsenic, and antimony occur in the same vertical column of the periodic system. What analogy is there in their chemical and physical behavior justifying this classification ?

2. Define the terms allotropism, molecule, multiple proportion, catalysis, dissociation.

3. (a) Give fully the preparation, properties, impurities and tests for the impurities of sulphuric acid.

(b) How much oxygen measured at 17°C. and 756mm. are required to oxidize 500 grms. of iron pyrites, and how much sulphur dioxide at 0°C. and 760mm. is produced ?

4. What precautions should be observed regarding the examination of well-water ? Name some of the common impurities, and how they would be detected.

5. Hydrogen Chloride—How is this substance prepared ? For what is it used ? How is its composition determined ? Why is the formula HCl. and not H_2Cl_2 ?