EXAMINATION QUESTIONS—COLLEGE OF PHYSICIANS AND SURGEONS, ONTARIO, 1878.

CHEMISTRY—*1st Year.*—J. MORRISON, M.D., M.A., *Examiner.*

1. What is heat? How is it measured? Define latent heat; specific heat; atomic heat; and the thermal unit. Explain the construction and use of the thermometer and convert 25° Fahrenheit to centigrade V 75° C to F.
2. Define specific gravity, and show how the sp. gr. of liquids and gases is found. Explain the construction and use of the hydrometer, the densimeter, and the eudiometer.
3. Classify the non-metallic elements as to their quantivalence. Name the following compounds, HBr, $HClo_3$, PH_3, H_2O, NH_3, H_2S, and state the functions H performs in each.
4. How is the composition of the atmosphere determined as regards N and O? What other elements or compounds are found in it? What functions do they perform, and how are they detected.
5. Give the composition, mode of preparation, properties and uses of hydrochloric acid, ammonia, sulphuretted hydrogen, nitrogen monoxide, sulphurous acid. Explain the reactions in each case.
6. What are the sources of I and P? How are they prepared? What compounds do they form with H? Describe the different modifications of P. How much phosphoric anhydride can be obtained by burning 20 grains of phosphorous.
7. What are the chief ores of arsenic? Name its oxides, and state how they are prepared. Point out the general chemical relations of As., P and N compounds.
8. Describe Marsh's test for arsenic.

CHEMISTRY—*2nd Year.*—J. MORRISON, M.D., M.A., *Examiner.*

1. Classify the commonly occurring metals as to their quantivalence. Define and give examples of the following, a dyad radical, an anhydride, a hydrate, an acid salt.
2. Explain by diagrams or equations the preparation of potassium iodide, potassium chlorate, mercuric chloride, ferric sulphate, and ammonium chloride. Describe their properties and uses.
3. Write down the typical formulæ of the most important cyanogen compounds. Describe the mode of preparation, and chief properties of hydrocyanic acid.
4. Give a short account of the principal phenomena of fermentation. Name its five principal forms and the products of each.
5. Name the properties and mode of preparation of ethyl alcohol, and state the chemical changes which occur when a primary alcohol passes to the corresponding aldehyde and acid.
6. How is valerianic acid artificially prepared? In what natural bodies is it found, and what is its chemical relation to amylic alcohol?
7. How are ethyl nitrite and chloral hydrate prepared? What are their formulæ, properties, and uses?
8. How are quinia disulphate and strychnia prepared? Give the chemical characters of each, and show how salicin may be detected in the former, and brucia in the latter.

PRACTICAL CHEMISTRY.—J. MORRISON, M.D., M.A., *Examiner.*

1. What impurities are found in sulphuric acid, acetic acid, magnesium sulphate, and potassium carbonate? Give the tests for them.
2. What are the tests for hydrocyanic acid? How much anhydrous hydrocyanic acid is there in an eight ounce bottle of medicine, six fluid drachms of which precipitated with a solution of nitrate of silver, shall yield four grains of dry cyanide of silver.
3. Give three tests for salts of zinc, three for manganese and four for lead. Give the reactions in each case.
4. How is potassium chloride detected in potassium bromide, and how are iodides removed from a solution containing chlorides and bromides?
5. How is potassium iodate detected in potassium iodide, and how separated from it?
6. Describe Reinsch's test for arsenic. Under what circumstances may its indications prove fallacious? What is the peculiar value of Fleitmann's test (*i.e.*, the action of AsH_3 on AG, NO_3).
7. How would you detect mercuric oxide in "red lead," calomel in corrosive sublimate, and lead carbonate, in barium sulphate?
8. Give tests for albumen, bile, and sugar in urine.

ANATOMY—*1st Year.*—DR. BERGIN, *Examiner.*

1. Into how many classes are bones usually divided? Name them and give examples of each.
2. What are muscles; how are they formed; of what do they consist; and how many, and what kinds of muscular tissue are there in the animal body?
3. Enumerate the ligaments of the hip joint, and give their points of attachment.
4. Name the openings connected with the diaphragm and the parts transmitted through these openings.

ANATOMY—*2nd Year.*—DR. BERGIN, *Examiner.*

1. Describe fully the articulation of the spine with the cranium, including the vertebræ as well as the ligaments.
2. How many kinds of blood vessels are there? Name and describe them briefly.
3. Give the relations of the ulnar artery from its commencement to its termination.
4. Name the muscles of the anterior thoracic region and the nerves that supply them.