

Reports by deputations of Branch Medical Council for Scotland appointed to visit the examination for medical degrees and licenses in Edinburgh, Glasgow, and Aberdeen.

Contributors

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REPORTS BY DEPUTATIONS

OF

BRANCH MEDICAL COUNCIL FOR SCOTLAND

APPOINTED TO VISIT THE EXAMINATION FOR MEDICAL
DEGREES AND LICENSES IN EDINBURGH, GLASGOW,
AND ABERDEEN.

REPORTS BY DEPUTATION

BRANCH ANNUAL JOURNAL FOR 1904

FORWARDED TO THE SECRETARY OF THE BOARD

FOR THE YEAR ENDING 31st DECEMBER 1904

1905

REPORT BY DEPUTATION
OF
THE SCOTTISH BRANCH OF GENERAL MEDICAL
COUNCIL,
ON EXAMINATION FOR DEGREES IN MEDICINE IN
UNIVERSITY OF EDINBURGH.

As deputed by the Scottish Branch of the Medical Council, we visited, on the 17th July, the examinations for the degree of M.D. at the University of Edinburgh.

We were most courteously received by Dr. Balfour, the Dean of the Medical Faculty, who gave us all needful information, and placed before us every document which could make clear to us the method of conducting the examination, and also of judging in regard to the competency of the candidates.

During our visits several candidates underwent an oral examination on Anatomy, Physiology, and Surgery. The examination on Anatomy was conducted by Professor Goodsir, assisted by Dr. Robertson, Assessor; that on Physiology by Professor Bennett, assisted by Dr. Sellar, Assessor; while Professor Spence, assisted by Mr. Bell, Assessor, examined on Surgery.

The examination on Anatomy was largely demonstrative, the candidate being required to show his knowledge on bones, dissections, and wet preparations placed before him. In the course of the examination on Physiology, the candidates were required to explain the nature of preparations of minute structure placed under the microscope. The examination on Surgery was largely illustrated by wet and dry preparations, and morbid specimens illustrative of Surgical diseases.

The examiners sat at different tables, each candidate passing in rotation from one to the other, and remaining about twenty minutes at each. Two examiners sat at each table, one putting the questions, the other taking notes of the subjects over which the examination extended.

The method by which the competence of the candidates was estimated, is explained in Schedule No. I. to this Report, and we had an opportunity of seeing it fully tested in the course of the examination.

We were also furnished with the questions used in the written examinations on these subjects, which are given in Schedule No. II.

We farther received specimens of the written answers selected at random from the three following classes :—

1st. Passed.

2d. Admitted to an oral examination, though written answers not very good.

3d. Rejected on the written examination.

A careful examination of these papers convinced us that the standard laid down was strictly adhered to.

It happened that all the gentlemen who were under examination at our visit were candidates who had been previously examined, but remitted for a further trial; a circumstance which had its advantages as well as disadvantages, as far as our understanding the system was concerned.

On the whole, the impression produced on our minds by this first visitation made by us under the Medical Act is, that such visitations will be most beneficial, and are well calculated to aid in promoting efficiency and uniformity of examination throughout the licensing bodies.

ANDREW WOOD, M.D.

ALEXANDER WOOD, M.D.

SCHEDULE No. I.

EXAMINATION FOR MEDICAL DEGREES.

Marks to be used for the Exercises and Oral Examinations.

Value.

- 100 **B.**—Good, above average. All the questions answered well.
 75 **S. B.**—Satisfactory. Two-thirds of the questions answered well.
 50 **V. S. B.**—Scarcely satisfactory. One-third of the questions answered well. An Oral Examination in certain circumstances.
 30 **N. S. B.**—Decidedly unsatisfactory. None of the questions answered well, or one entirely omitted. Another Written Examination on the subject so marked.
 0 **M.**—Bad. All the questions answered badly, or more than one omitted. A Written Examination after another *Annus Medicus* has been completed.

An average of 60 entitles to a pass.

FIRST AND SECOND EXAMINATIONS.

Three Subjects each.

1. CHEMISTRY, BOTANY, AND NATURAL HISTORY.
2. ANATOMY, INSTITUTES OF MEDICINE, AND SURGERY.

3 **B.**—Pass with honours.

2 **B.** + 1 **S. B.**—Pass with credit.

1 **V. S. B.** + 2 **S. B.**—May be allowed an Oral Examination. If marks continue the same, may pass with admonition.

1 **N. S. B.** + 2 **S. B.**—An Oral Examination on the subjects marked **S. B.** Another Written Examination on that marked **N. S. B.**

1 Male + 2 S. B.—Must pass a satisfactory Written Examination on the subject marked **Male** before being admitted to an Oral Examination on any of the subjects.

2 V. S. B. + 1 S. B.—Remitted.

1 N. S. B. + 1 V. S. B. + 1 S. B.—Remitted.

All below these remitted, and the Candidate required to undergo another Written Examination on all the subjects:

FINAL EXAMINATION.

MATERIA MEDICA, MIDWIFERY, PRACTICE OF PHYSIC, PATHOLOGY,
MEDICAL JURISPRUDENCE, AND CLINICAL MEDICINE.

(Prescriptions to be judged separately.)

6 B.—Pass with honours.

4 B. + 2 S. B.— Pass with credit.

2 V. S. B. + 4 S. B.—An Oral Examination. If marks continue the same may pass with admonition.

2 N. S. B. + 4 S. B.—An Oral Examination on the subjects marked **S. B.** Another Written Examination on those marked **N. S. B.**

1 Male + 5 S. B.—Must pass a satisfactory Written Examination on the subject marked **Male** before being admitted to an Oral Examination on any of the subjects.

4 V. S. B. + 2 S. B.—Remitted.

2 N. S. B. + 2 V. S. B. + 2 S. B.—Remitted.

2 Male + 4 S. B.—Remitted.

All below these remitted, and the Candidate required to undergo another Written Examination on all the subjects.

In all cases, two-thirds below average rejects.

SCHEDULE No. II.

SECOND EXAMINATION.

Tuesday, 4th July 1865.

The Answers on each subject to be written on a separate paper.

The paper to be folded according to pattern shown, and the Subject, as well as the Name and Address of the Candidate, to be written on the outside.

The name of the Candidate to be also written on this printed paper, which is to be returned along with the Exercise. Both to be put into the hands of one of the Examiners before the Candidate leaves.

No Books or Notes of any kind are allowed, and no Communication among the Candidates.

ANATOMY.

Any three, but not more than three, of the following Questions to be answered :—

1. Describe the posterior triangular space in the right side of the Neck ; and state how it differs from the corresponding space on the left.
2. State the characteristics of the folia and lobes of the Cerebellum ; and give the anatomical arrangements by which the Cerebellum is connected with the Medulla Oblongata and the Cerebrum.
3. Describe the structure of the Testis, including the Epididymis.
4. Give the anatomical characters of a Capillary, of an Artery, and of a Vein.

INSTITUTES OF MEDICINE.

Any three, but not more than three, of the following Questions to be answered :—

1. What is the vital property of the Nerve Tube, and the actions occasioned by exciting its terminations in brain, muscle, gland, and skin ?
2. How are the blood corpuscles formed in the adult ? What are their functions, and how is Leucocythemia produced ?
3. What are the proofs that Contractility exists in the capillary blood-vessels ?
4. Describe the manner in which the rapidity of the Nerve-current is determined.

SURGERY.

Any three, but not more than three, of the following Questions to be answered :—

1. Symptoms, pathology, and treatment, of different forms of Hæmorrhoids, with reasons for treatment.
2. Describe the symptoms and appearances in a case of Fracture of the "Surgical Neck" of the Humerus, and state the treatment and its objects.
3. Describe the operation for Excision of the Elbow Joint by a single longitudinal incision ; the points to be attended to in operating ; and state what are the advantages or disadvantages of this plan as contrasted with the H incision.
4. Describe the symptoms, pathology, and principal methods of treatment of Popliteal Aneurism.

REPORT BY DEPUTATION

OF THE

BRANCH MEDICAL COUNCIL FOR SCOTLAND

APPOINTED TO VISIT THE EXAMINATION FOR DEGREES IN
MEDICINE OF THE UNIVERSITY OF GLASGOW.

ON the 25th July 1865 we visited the Examination for Degrees in Medicine at the University of Glasgow. We were courteously received by the Professors, who furnished us with full details of the method of conducting the examinations, both written and oral, as also with copies of the questions used in the written examinations, which we append to this Report. We have had the opportunity of perusing various specimens of the written answers, some of them marked good, some marked medium, and some marked bad, and thus we were enabled to judge of the standard which is applied in deciding regarding them. It is not the usual custom to remit candidates on the written answers alone, an opportunity being almost invariably given them of going up for the oral even though the written answers may be unsatisfactory. The experience of the examiners, we were told, is that very rarely indeed is the result different; but if the requisite numbers are obtained on the aggregate of the two examinations, a candidate may pass, though his written answers may have been deficient, unless the deficiency has been in regard to a practical subject. We had the opportunity of hearing several candidates examined orally,—the examination on Anatomy being conducted by Professor Allen Thomson, that on Physiology by Professor A. Buchanan, that on Materia Medica by Professor Easton, that on Surgery by Professor Lister, that on Medicine by Professor Gairdner, that on Midwifery by Professor Pagan, and that on Medical Jurisprudence by Professor Rainey. The Professors sit at separate tables, and each candidate is under examination for about twenty minutes. The examinations on Anatomy and Histology were demonstrative, being conducted by means of dissections, preparations, models, etc.; the Materia Medica and the Chemistry examinations were illustrated by specimens. Two assessors, viz., Dr. Fleming and Dr. Coates, were also present at the examinations, visiting the various tables in succession. We observed, however, that, during a considerable part of each examination, there was no one present excepting the examining Professor and the candidate. We think it would be an improvement were it

so arranged that no examination should be conducted unless in the presence of not less than two Professors, or one Professor and an Assessor, one of whom should take jottings of the subjects of examination. This would be more satisfactory, both to the Professor and to the candidate. Several of the Professors expressed to us their anxious wish that such an arrangement should be made imperative. We had opportunities of seeing in operation the method of judging of the answers of candidates, as well in the written as in the oral examinations. We give a table of the terms used in judging, and the numerical signification attached to these terms :—

Optime	= 10
Admodum Bene	= 8
Bene	= 6
Satis Bene	= 4
Vix Satis Bene	= 2
Pessime	= 0

Unless a candidate gain the value of 20 on the whole subjects, he is not allowed to pass. From the specimens we saw we are satisfied that the standard is rigidly adhered to.

In medicine, each candidate is also examined clinically in the Hospital, having to give a report on a case of disease, to show his ability to examine urine, to employ the ordinary means of physical diagnosis, and generally to show his aptitude in other miscellaneous details of daily practice.

We had not an opportunity of seeing this carried out, but Professor Gairdner has explained to us the method which is followed.

R. CHRISTISON.
ANDREW WOOD.
ALEXANDER WOOD.
JAMES SYME.

SCHEDULES.

[*N.B.*—The Questions which were PRINTED for the Examination are given. Others were written on a black board.]

ELEMENTARY ANATOMY.

July 1865.

1. Describe the form, size, and position of the acetabulum in the os innominatum, the difference in the condition of this part of the dried bone at the ages of 18 and of 25 years, and the disposition of the cartilage, ligaments, and synovial structures connected with it in the wet state.

2. Describe form, position, and attachments of the biceps brachii muscle, and state the relation in which its several parts are placed with respect to the surrounding bones, ligaments, and muscles.

3. Describe the form, position, and attachments of the diaphragm in its muscular and tendinous parts; mention the several larger organs

which pass through it, and state the nature of its action and its mechanical effect in connexion with the movements of respiration.

4. Give a short account of the structure and mechanism of the mitral and aortic semilunar valves of the heart.

ADVANCED ANATOMY.

July 1865.

1. Describe the immediate relations of the brachial artery at the bend of the arm to fasciae, tendons and muscles, to nerves and to veins.

2. Describe the muscles, blood-vessels, and nerves as they lie in the space immediately within the ramus of the lower jaw, or as they would be exposed by a dissection made after the removal of that portion of bone.

3. Describe the origin, course, and distribution of the deep pudic artery; mention what part or branches of it are liable to be wounded in the lateral operation of lithotomy; and state by what artery the terminal branches of the pudic are replaced when that artery is absent or deficient.

4. Give a short account of the minute structure of the following tissues:—

The muscular substance of the heart.

The muscular coats of the gullet.

A spinal nerve.

A ganglion of the sympathetic nerve.

CHEMISTRY.

April 1865.

The Candidates are expected to answer two Questions in each Section.

I.

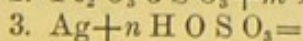
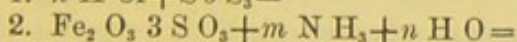
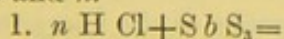
1. Describe the preparation of Chlorine from Hydrochloric Acid, and give the equation expressing the change,

2. Give a process for the preparation of Iodide of Potassium, and mention its principal impurities.

3. Give the symbol for Alum, and explain its preparation from Alum Shale.

II.

Solve the following equations, putting the proper values in the place *m* and *n*.



III.

1. What is meant by Substances being Isomorphous?

Give two examples of Isomorphous Compounds.

2. By what reactions is Magnesia detected?

3. What is the composition of Urea, and how is it prepared from the Urine?

REPORT BY THE SAME DEPUTATION

ON

THE EXAMINATION FOR LICENSES BY THE FACULTY OF
PHYSICIANS AND SURGEONS OF GLASGOW.

ON the same day on which we attended the examinations at the University of Glasgow (25th July), we had the opportunity of being present at a special single examination by the Glasgow Faculty, which happened to take place on that day. The candidate had previously been subjected to a written examination. We had the opportunity of seeing his written answers, which were deemed satisfactory. He was then in our presence examined orally by a Board, consisting of Dr. Ritchie, who examined in Medicine and Medical Jurisprudence, Dr. J. Morton, who examined in Anatomy and Physiology, Dr. Adams, who examined in Surgery and Midwifery, and Dr. Perry, who examined in Chemistry and Materia Medica. Each examiner occupied about twenty minutes. The examination was illustrated by preparations, specimens, etc.

In judging of the question whether the candidates should pass or not, the examiners seemed to have no specific standard, but to decide upon the general tenor of the examination. We do not consider that, from a single exceptional examination, we can form a correct notion of the ordinary method of examining and judging of the regular examinations of the Faculty, which we believe are somewhat differently conducted from what is the case in regard to the single exceptional examinations; we therefore deem it right that we should again visit the examination of the Glasgow Faculty on a regular statutory occasion, when we shall be prepared to report further.

Nothing could be more courteous than our reception, and the officials of the Faculty displayed the utmost readiness to put us in possession of all the information we could desire.

R. CHRISTISON.
JAMES SYME.
ANDREW WOOD.
ALEXANDER WOOD.

REPORT BY DEPUTATION

OF

BRANCH MEDICAL COUNCIL FOR SCOTLAND

APPOINTED TO VISIT THE EXAMINATION FOR DEGREES IN
THE UNIVERSITY OF ABERDEEN.

EDINBURGH, *August 1865.*

As commissioned by the Scottish Branch of the General Council of Medical Education and Registration, we proceeded, on the 27th August 1865, to inspect the examinations for the Medical Degrees of the University of Aberdeen. Dr. Fleming, who was associated with us in the work, was unavoidably prevented from attending.

The forenoon we spent, under the kind guidance of Professor Struthers, in examining the means of teaching possessed by the University, and we cannot speak in too high terms of the thorough and complete character of all the arrangements for imparting instruction; although the written examinations were over before our arrival, the amplest opportunity was given to us of becoming acquainted with the manner in which they are conducted.

Each candidate lodges with the Dean of the Medical Faculty a schedule, of which a copy is appended (No. I.)

He then receives, duly filled up, a copy of the notice (No. II.) telling him the day and hour of the written examination. The times of the examinations, it will be observed on referring to this notice, are so arranged that each candidate *for each professional examination has but one subject per day.*

Before each candidate is placed a printed copy of rules (No. III.)

Formerly, in Aberdeen, the candidates sat round long tables in the common hall, as is still done in the written examinations of some boards. Now, however, the long tables have been discarded, and each candidate occupies *a seat at a small table reserved for his exclusive use*. This, we were informed, is found in practice greatly to lighten the labour of the superintendent of the written examination, and also to render more difficult those disgraceful means of obtaining assistance surreptitiously, which we fear are still too common in all our schools.

By the kindness of the Medical Faculty of the University, we were furnished with a complete set of the printed questions which had been placed before the candidates at the April and July written examinations—appended to our Report (No. IV.)

In the written examinations, three hours are allowed for each of the nine subjects.

The oral examination at which we had the pleasure of being present, was the first professional only. It commenced at three P.M. and lasted until five, recommenced at six and terminated at eight.

It was conducted at tables, one being devoted to each subject, two and often more examiners being present at each table. Each candidate was on an average examined for about fifteen minutes on Botany, Chemistry, and Materia Medica, and for about twenty minutes on the other subjects.

It is a rule with the Medical Faculty that when a candidate has got the mark of "*optime*" (in the system of marks to be explained hereafter) on all the subjects of the written examination, he is not subjected to an oral examination at all. It occurred to us to see two candidates exempted in this way. No one who has had much practice in examining can fail to be struck with the disparity between the written and oral examination of the same candidate in not a few cases, a circumstance which seems to us to render it desirable that both methods of testing the acquirements of candidates should in every case be employed. We merely remark this in passing as a subject deserving of consideration.

One peculiarity in the distribution of the subjects for the first and second professional examination struck us very forcibly. In Aberdeen, Materia Medica is included in the list of subjects for the first examination, coming thus at an earlier period than the examination on Practice of Medicine and Surgery. It is evident that by this arrangement the examination must necessarily be confined to the Natural History and Elementary Chemistry of Drugs, and that no examination on Therapeutics can take place, and that, consequently, unless this deficiency be supplemented by the Professors of Medicine and Surgery at the second examination, the student's knowledge of this important department of his profession will never be tested by examination at all. We found, on inquiry, that this arrangement was ordered by an ordinance of the University Commissioners, and is much objected to by the present excellent Professor, Dr. Harvey. In conversation with that gentleman, he suggested several plans for remedying the evil, one in particular which struck us as of wider application than to that subject alone, viz., that instead of one six months' course of Materia Medica, that subject should be divided into two three months' courses, whereof one, the description of the drugs and the *preparata et composita* should precede the practical branches of Medicine and Surgery; and the other, Therapeutics, properly so called, should be given at a later period.

Each student at Aberdeen presenting himself for examination receives a card, on which are printed in order the several subjects of examination,

and as he leaves the table the Professor who has examined him initials the subject on which he has examined.

Although at least two examiners are present at each table, we did not observe that any minute was kept of the subjects on which each candidate was examined, as is most efficiently done in the examinations in the University of Edinburgh, and might, we think, with advantage be carried out in the examinations of all Boards.

One feature of the examinations particularly marked at Aberdeen was their demonstrative character. Each Professor was liberally supplied with objects relating to his special department, which the student was required to illustrate and explain. This method is calculated to test a candidate thoroughly on what he knows by real study, and not, as is too often the case at present, on what he has been merely crammed with, or has crammed himself with, for examination purposes.

We were also struck with the facility of the students in overcoming what may be called the mechanical part of their examination. Right or wrong, they answered freely and readily, leaving on the mind of the examiner no painful feeling that the candidate was entirely unaccustomed to such mental discipline, and that possibly on this account he might be doing himself injustice. On inquiry as to the cause of this, we were informed that most of the students had undergone a complete literary course, comprising examinations at the University; that a large proportion of them had taken the degree of M.A. before entering on their medical studies, and that they had been accustomed to attend the weekly examinations *regularly, attendance on these being compulsory*, except in very special cases.

The Medical Faculty of the University of Aberdeen have bestowed much attention on the subject of the marks given to candidates, in order to determine their position in the pass list. They attach great importance to the system of "merits" and "honours," finding that it stimulates students to diligent and accurate study, and affords the holders of such honourable certificates a ready passport to situations in England or elsewhere.

We append (No. IV.) a written explanation of this system, kindly furnished to us, at the request of the Dean of the Faculty, by Professor Brazier.

We had the opportunity, by special request, of being present at the meeting of the Professors held at the conclusion of the examinations for the purpose of deciding upon the merits of the candidates. Each Professor gave his report on his own subject, and then the deduction as to the position of the candidates was made from a very careful consideration of the whole, a certain general minimum being required to be attained before a candidate can pass.

In concluding this Report, it is impossible not to say how pleased we were with the thoroughness of the whole work in this ancient University, and how gratifying, not only to ourselves personally, but also to the

body by whom we were deputed, was calculated to be the more than kind and courteous reception which we met with.

ALEXANDER WOOD, M.D.

ANDREW WOOD, M.D.

APPENDIX.

No. I.

MEDICAL SCHEDULE.

To be filled up in the handwriting of each candidate for a Medical Degree.

Signature of CANDIDATE,

SON of

Candidate Born, { *When,*
 { *Where,*

Certificates of Moral Character from

Candidate's usual Post-Office Address,

MEMORANDA.

THE CANDIDATE WILL PLEASE TO INSERT THE NAMES OF THE SEVERAL TEACHERS HE HAS STUDIED UNDER IN EACH YEAR.

	FIRST YEAR.	SECOND YEAR.	THIRD YEAR.	FOURTH YEAR.	FIFTH YEAR.	SIXTH YEAR.	
Years of Study, { <i>Winter</i> , { <i>Summer</i>	18 — 18 18	18 — 18 18	18 — 18 18	18 — 18 18	18 — 18 18	18 — 18 18	<i>Winter</i> , { Years of Study.
Medical School Attended,.....							Medical School Attended.
Chemistry,	By whom Taught.	By whom Taught.	By whom Taught.	By whom Taught.	By whom Taught.	By whom Taught.	Chemistry.
Practical Chemistry,							Practical Chemistry.
Botany,							Botany.
Materia Medica,.....							Materia Medica.
Anatomy,.....							Anatomy.
Practical Anatomy,.....							Practical Anatomy.
Zoology, with Comparative Anatomy,.....							Zoology, with comparative Anatomy.
Surgery,							Surgery.
Institutes of Medicine,							Institutes of Medicine.
Practice of Medicine,							Practice of Medicine.
Midwifery,.....							Midwifery.
Medical Jurisprudence,.....							Medical Jurisprudence.
Clinical Medicine,							Clinical Medicine.
Clinical Surgery,.....							Clinical Surgery.
Other Medical Classes, and opportunities generally of professional improvement,							Other Medical Classes, and opportunities generally of professional improvement.

Under whom, where, when, and how long, the CANDIDATE practised the COMPOUNDING and DISPENSING of MEDICINES.

At what HOSPITAL, under what PHYSICIANS, under what SURGEONS, when, and how long, the CANDIDATE attended respectively the MEDICAL and the SURGICAL WARDS.

The Candidate may here state whether he possesses any or what Degree in ARTS, or any or what Degree or Licence in MEDICINE or SURGERY.

No. II.

UNIVERSITY OF ABERDEEN.

MEDICAL GRADUATION EXAMINATIONS.

The Written Examinations at the ensuing MEDICAL GRADUATION TERM will commence on _____, the _____, and be conducted in the following order :—

FIRST PROFESSIONAL.	9 A.M.	9 A.M.	9 A.M.
	CHEMISTRY.	MATERIA MEDICA.	BOTANY. — ELEMENTARY ANATOMY.
	1 P.M.	1 P.M.	1 P.M.
SECOND PROFESSIONAL.	ADVANCED ANATOMY.	SURGERY.	PHYSIOLOGY. — ZOOLOGY, AND COMPARATIVE ANATOMY. }
	5 P.M.	5 P.M.	5 P.M.
THIRD PROFESSIONAL.	PRACTICE OF MEDICINE.	MEDICAL JURISPRUDENCE.	MIDWIFERY.

No. III.

UNIVERSITY OF ABERDEEN.

REGULATIONS TO BE OBSERVED BY CANDIDATES AT THE
EXAMINATIONS FOR MEDICAL DEGREES.

1. The heading at the top of each sheet of paper must be properly filled up with the date and the name of the subject of the Exercise.
2. No writing is allowed on the margin of the page.
3. No half-sheet of paper is allowed to be given in.
4. Each Exercise must be signed by the Candidate; and if it occupies more than one sheet, it must have the pages properly numbered, and each sheet of the Exercise must be signed. All the sheets to be returned inside the paper containing the printed questions.

Candidates will further bear in mind that, in passing a judgment on the Exercises, the Examiners will have particular regard to the Carefulness and Cleanliness of the Writing, to accuracy in Grammar and Spelling, and to general Clearness and Correctness of Expression.

Any Candidate found copying from another, using books or papers, or taking other unfair advantages in the Examination, will be at once rejected, besides being subjected to such further penalty as the Medical Faculty may set fit to impose in the case.

No. IV.

SPECIMENS OF PAPERS FOR THE WRITTEN EXAMINATIONS.

BOTANY.

By Mr. _____

July 1865.

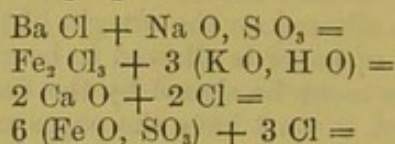
1. Describe the structure, and state the true nature of leaf buds.
2. Name the parts of the ovule previous to fecundation, and state their order of development.
3. Name the parts of the flower, and state their relation to each other and to the subtending bractea.
4. Define the terms Micropyle, Orthotropous, Monoecious, Gymnospermous.
5. Describe the structure of the fruit in the following orders,—under the heads, simple or compound, Placentation, and Dehiscence,—Cruciferae, Leguminosae, Primulaceae.
6. Refer the order Polygonaceae to class and sub-class, state the character and general properties.
7. Name Medicinal plants belonging to the orders Cucurbitaceae, Umbelliferae, Polygonacea, Euphorbiaceae.

CHEMISTRY.

By Mr. _____

24th July 1865.

1. Name the constituents of the atmosphere; and describe a process for ascertaining the relative proportion of each.
2. If the vapour of water comes in contact with red-hot iron, what action occurs? Give the properties of the products.
3. Describe the process of making Lime, and explain the difference between quick-lime and slaked lime.
4. Complete the following equations—



5. How would you distinguish by means of the blowpipe between Bismuth, Silver, and Lead?
6. State the reactions of Nitrate of Silver with Protosulphate of Iron, Common Phosphate of Soda, and Sulphide of Sodium, respectively.
7. Enumerate the Oxides of Copper; and explain by diagram the action of Caustic Potash upon a solution of Sulphate of Copper in the presence of Grape Sugar (Diabetic Sugar).

MATERIA MEDICA.

By Mr. _____

July 1865.

1. Name the Official Preparations of *Zinc*; *Magnesia*; *Aconite*; *Catechu*; and *Colchicum*.
2. State the average dose for an Adult of each of the following preparations,—namely, *Acidum Gallicum*; *Acidum Hydrocyanicum Dilutum*; *Antimonium Tartaratum*, (1) as an Expectorant, (2) as a vascular depressant, (3) as an Emetic; *Calomelas*, (1) as a Purgative, (2) as an Alterative; *Cusso*; *Kamela*; *Liquor Calcis*; *Saccharatus*; *Liquor Strichniæ*; *Liquor Arsenicalis*; *Pilula Opii*; *Plumbi Acetas*; *Podophylli Resina*; *Potassii Bromidum*; *Pulvis Kino c. Opio*; *Quiniæ Sulphus*.
3. What part or parts of the following plants are officinal—namely, *Colocynth*; *Scammony*; *Jalap*; *Aconite*; *Belladonna*; *Colchicum*; *Digitalis*; *Filix*; *Cardamomum*; *Krameria*.
4. What are the chief ingredients in *Pulvis Catechu Comp.*; *Pilula Colocynthidis Comp.*; *Pilula Calomelanos Comp.*; *Decoctum Sars Comp.*; *Decoctum Aloes Comp.*; *Pulvis Rhei Comp.*; *Pulvis Scammonia Comp.*; *Tinctura Gentianæ Composita*.
5. Describe the physiological action of *Opium*—*first*, in moderate or medicinal doses; and, *secondly*, in excessive or poisonous doses.
Or, instead of *Opium*, the physiological action, in full doses, of *Cannabis Indica*; or *Chloroform*.
6. Name the different kinds of *Extracts* to be found in the British Pharmacopœia; and give an example of each kind.
7. Name the officinal *Cinchona* Barks; the predominant Alkaloids contained in each kind; and the officinal preparations made from these barks.
8. Enumerate (giving the names in Latin, and unabridged) the officinal preparations of *Iron*.

ELEMENTARY ANATOMY.

By Mr. _____

26th July 1865.

1. Give a description of the specimen placed before you.
2. Mention the Bones with which each of the Metacarpal and Metatarsal Bones articulates; and give the Homology of the Carpal and Tarsal Bones.
3. Describe the anatomy of the following Muscles—(a) Rectus Abdominis; (b) Triceps Extensor Cubiti; (c) Flexor Longus Digitorum Pedis.
4. Describe the under surface of the Liver, and mention the parts which occupy the various fissures.

ADVANCED ANATOMY.

By Mr. _____

July 1865.

1. Describe the Veins which are met with in the dissection of the Neck, superficial and deep,—their formation, course, and termination; and mention the situations in which Valves are found in them.
2. Describe the course, relations, and structure of the Œsophagus.
3. Describe the method of making a lateral section of the male Pelvis, so as to retain the natural position of the Viscera; and describe the relations of the Viscera and Fascia, as seen when the section is completed.
4. Mention the relative position and appearance of the parts which are brought into view when the Aponeurosis is removed from the front of the Leg and back of the Foot.
5. Describe the arrangement of the Capillary Blood-vessels in the Liver and in the Kidney.

PHYSIOLOGY.

By Mr. _____

26th July 1865.

1. Into what groups may Alimentary Substances be divided, with reference to their Chemical Composition, and their adaptation to Nutrition? In which of these groups would Bread and Meat be placed?
2. Describe the minute structure of the Intestinal Villi, and state what parts the different Vessels and the Epithelial Cells are supposed to take in Absorption.
3. What is meant by the Buffy Coat in Blood? In what way is it formed; and in what cases is it most distinct?
4. Mention the principal constituents of Milk, giving the most remarkable properties of each.
5. What secretions appear to be pre-existent in the Blood? On what grounds is this admitted?
6. What are the conditions necessary for the healthy Nutrition of any part of the body?
7. What are the principal functions of the Spinal Cord; and what parts do the Grey Matter and the Anterior and Posterior Columns appear to take in these functions?

All Candidates are expected to answer Four of these Questions.

SURGERY.

By Mr. _____

July 1865.

1. Give the symptoms, pathological characters, and treatment of acute suppurative Arteritis.
2. Describe the operation of tying the External Iliac Artery.
3. What are the varieties of Symptoms caused by a foreign body in the different portions of the Laryngo-Tracheal Canal, and what are the various modes of treatment dependent on the site of the foreign body?
4. Describe briefly the local and general treatment for the first stage of the three first degrees of Burns.

MEDICAL JURISPRUDENCE.

By Mr. _____

July 1865.

1. Give the *distinctive sexual characters*, respectively, of the male and female adult human skeletons.
2. Define the legal crime of Rape; and adduce the points which the medical jurist should seek to bring out in corroboration of the crime, when committed on the puberant virgin female.
3. What are the symptoms which usually follow the continued exhibition of overdoses of Tartar Emetic; and what steps would you take in order to detect it chemically in the body, where a case of this sort has terminated fatally?
4. How would you proceed in the search for Strychnia in the Alimentary tube, after fatal poisoning with this alkaloid?

MIDWIFERY.

By Mr. _____

July, 1865.

1. Give the dimensions of a healthy female Pelvis at the *Brim* and *Outlet*, with the axis of both.
2. Give the smallest dimensions of a Pelvis through which a living child can pass.
3. Describe the present theory of Menstruation, the nature of the discharge, and the changes observed in the Ovary after each period.
4. Give the symptoms and treatment of simple inflammatory ulceration of the Os and Cervix Uteri.
5. State the untoward events which may befall a woman in child-bed, from the moment a child is born to the end of the fourth day, and give the treatment of those occurring the first day.
6. To what important affections derived from the mother are new-born infants sometimes exposed within the first forty-eight hours of their life. State the symptoms, consequences, and treatment.

PRACTICE OF MEDICINE.

By Mr. _____

July, 1865.

1. Give the Physical signs of (1) Pleuritic effusion, (2) Hepatized Lung, (3) Emphysematous Lung.

2. Describe the different modifications of dilated Bronchus; and the effects produced by this lesion on the surrounding Lung tissue.
3. Describe the pathological characters of fatty degeneration of the Heart; its symptoms and signs; and its treatment.
4. What are the diseased conditions that give rise to perforation of the Alimentary Canal? What are the symptoms that most usually indicate the occurrence of this lesion? What is the treatment?
5. What are the chemical and physical characters of the Urine, (1) in Diabetes, (2) in Bright's Disease of the Kidneys?
6. What do you suppose is the pathological condition of the Brain when the patient lies in a semi-comatose state in the early stage—prior to the appearance of the eruption—of Scarlet Fever or Measles? How would you treat it?
7. What external parts and structures of the body are chiefly affected in Acute Rheumatism? What internal organs and structures are most apt to be secondarily affected? What mode of treatment for the Rheumatism affords the best protection against the secondary complications? Prescribe the remedies, with directions for their administration, in Latin without abbreviations or symbols: and explain their Therapeutic action.
8. What do you mean by Reflex Paraplegia? Give examples.

No. V.

UNIVERSITY OF ABERDEEN,
Aug. 17th, 1865.

Dr. Alexander Wood,

DEAR SIR,—I have been requested by the Dean of the Medical Faculty to forward you—

- (1.) A copy of our printed schedule for showing the days and hours of the written examinations. (Three hours are allowed for each of the nine subjects.)
- (2.) A printed set of rules placed upon the table of every candidate.
- (3.) A complete set of the printed questions at the July Examinations.
- (4.) A complete set of the printed questions at the April Examinations.
- (5.) A statement of the time devoted to the oral examination of each subject, viz., an average of fifteen minutes in Botany, Chemistry, and Materia Medica, and an average of twenty minutes on the others.
- (6.) A list of our marks, with their estimated values, to enable others to compare them, according to the numerical system employed by other Boards. They are as follows:—

Excellent or Optime		0		10
Good	Bene+	B+		9
Good	Bene	B		8
Good—	Bene—	B—		7
Passable +	Mediocriter+	M+		6
Passable	Mediocriter	M		5
Passable—	Mediocriter—	M—	}	4
				3
				2
Bad	Pessime	P		1

- (7.) Our system of merit, and subsequently "honours." Upon each professional examination (embracing three subjects) a candidate receives an

order of merit determined by the above marks ; these orders of merit are, four in number,—

Pass,
 Pass with credit,
 Pass with much credit,
 Pass with highest credit.

A provisional minute determines that “no candidate shall be passed with credit, however high he may stand in any subject, unless he comes up to the standard of B— in the others.”

Experience has led us to adopt the following divisions in determining the orders of merit :—

Up to $\left\{ \begin{array}{ccc} M & M & M \\ B & B- & B- \end{array} \right\}$ (The lowest mark previous to *credit*).
 pass.

Up to $\left\{ \begin{array}{ccc} B & B & B- \\ B+ & B+ & B- \end{array} \right\}$ or any equivalent, thus
 $B+ B- B- = B B B-$
 credit. credit.

Up to $\left\{ \begin{array}{ccc} B+ & B+ & B \\ B+ & 0 & B+ \end{array} \right\}$ or $0 B+ B-$ = $B+ B+ B$
 much credit. much credit.

$B+ 0 0$
 $0 0 0$
 highest credit.

SYSTEM OF HONOURS.

The following is quoted from the minutes of the Medical Faculty upon that subject :—“Honorary certificates to be granted to deserving students along with the degrees—such certificates to be of two classes—one, of the highest academical honours, embracing Medicine and Surgery; and the other of honourable distinction either in Medicine or Surgery, as the case may be.

“Reserving special cases for the consideration of the Faculty, the following rules are suggested for their ordinary procedure :—

“No certificate of the highest honours to be given unless a candidate comes up to *at least*—

“(1.) Much credit in each of his examinations ; or

“(2.) Second *and* third examinations with highest credit, and the first with credit.

“No certificate of honourable distinction to be given unless a candidate comes up to the following standard :—

“(1.) One examination with highest credit, and the others with credit.

“(2.) Or two examinations with much credit, and the other with credit.

“(3.) Or second or third examinations with much credit, and the other two with credit.

“The certificate of honourable distinction in Medicine or in Surgery to be granted to the candidate in accordance with the position he may have attained in his second or his third examination.

“The mark of B B B— to be the lowest upon which credit can be given ; and no candidate to be passed with credit, however high he may stand in any subject, unless he comes up at least to B— in the others.”

ILLUSTRATIONS.

	1st Examination.	2d Examination.	3d Examination.
The lowest degree of merit for highest honours,	<u>B+ 0 B+</u>	<u>B+ B+ B</u>	<u>0 B+ B-</u>
	much credit.	much credit.	much credit.
Highest honours,	<u>B B B-</u>	<u>B+ 0 0</u>	<u>B+ 0 0</u>
	credit.	highest credit.	highest credit.
Honourable distinction,	<u>0 0 0</u>	<u>0 0 0</u>	<u>0 0 0</u>
	highest credit.	highest credit.	highest credit.
	<u>B+ 0 0</u>	<u>B B B-</u>	<u>B- B+ B</u>
	highest credit.	credit.	credit.

The B+ being in Practice of Medicine, the certificate would be Honours in Medicine; if in Surgery, it would be "Honours in Surgery."

Or	<u>B+ 0 B+</u>	<u>B B B-</u>	<u>B+ 0 B+</u>
Honours in Medicine,	much credit.	credit.	much credit.
	<u>B+ 0 B+</u>	<u>B+ 0 B+</u>	<u>B B B-</u>
Honours in Surgery,	much credit.	much credit.	credit.
Or	<u>B B B-</u>	<u>B B B-</u>	<u>B+ 0 B+</u>
Honours in Medicine,	credit.	credit.	much credit.
Illustrations of cases deserving the consideration of the Faculty,	<u>B+ B+ M</u>	<u>B B B-</u>	<u>B+ 0 B+</u>
	pass.	credit.	much credit.
	<u>B+ B B</u>	<u>0 B M</u>	<u>B+ 0 B+</u>
	much credit.	pass.	much credit.

If there is anything not perfectly intelligible, I shall be most happy to give you any further information.—I am, dear Sir, yours truly,

(Signed) JAS. S. BRAZIER.

P.S.—I have thought proper to add one of the schedules which a candidate has to fill up when presenting himself for examination.

Introduction

The first figure of merit for the design of a machine is the amount of work it can do in a given time. This is usually expressed in terms of the number of revolutions per minute (RPM) and the torque it can exert. The second figure of merit is the efficiency of the machine, which is the ratio of the work done to the work input. The third figure of merit is the cost of the machine, which is usually expressed in terms of the price per unit of work done.

The design of a machine is a complex task that involves many different factors. The designer must take into account the requirements of the user, the available materials, and the manufacturing process. The design must also be optimized for performance, cost, and reliability. The following are some of the key considerations in the design of a machine:

- Performance:** The machine must be able to do the work it is designed for in a timely and efficient manner. This requires a careful selection of materials and components, as well as a thorough understanding of the machine's operating principles.
- Cost:** The machine must be designed to be as cost-effective as possible. This involves minimizing the amount of material used, simplifying the design, and choosing a manufacturing process that is well-suited to the machine's requirements.
- Reliability:** The machine must be able to operate reliably for a long period of time. This requires a thorough understanding of the machine's failure modes and the implementation of appropriate safety and maintenance features.

The design of a machine is an iterative process that involves many different stages. The designer must first define the requirements of the machine, then develop a conceptual design, and finally create a detailed design that can be used to manufacture the machine. The following are some of the key stages in the design process:

- Requirements Definition:** The designer must first define the requirements of the machine. This involves understanding the user's needs and the operating conditions of the machine.
- Conceptual Design:** The designer must then develop a conceptual design for the machine. This involves identifying the main components of the machine and determining how they will be connected together.
- Detailed Design:** The designer must then create a detailed design for the machine. This involves specifying the dimensions and materials of all the components, as well as determining the manufacturing process for each component.

The design of a machine is a complex task that requires a deep understanding of the machine's operating principles and the available materials and manufacturing processes. The designer must also be able to optimize the design for performance, cost, and reliability. The following are some of the key considerations in the design of a machine:

If there is anything you would like to know, please contact me at [phone number] or [email address]. I will be happy to help you in any way I can.

Sincerely,
 [Name]
 [Address]
 [City, State, Zip]