OFFICIAL GAZETTE
EXTRAORDINARY
OF SOUTH WEST AFRICA.

BUITENGEWONE

OFFISIËLE KOERANT
VAN SUIDWES-AFRIKA.

UITGAWE OP GESAG. *PUBLISHED BY AUTHORITY.*

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PROCLAMATION

by the State President of the Republic of South Africa

No. R. 115, 1971.

AMENDMENT OF THE SIXTH SCHEDULE TO THE MEDICAL, DENTAL AND PHARMACY ACT, 1928 (ACT 13 OF 1928)

Under the powers vested in me by section 61 *bis* (2) of the Medical, Dental and Pharmacy Act, 1928 (Act 13 of 1928), as amended by section 15 of Act 44 of 1969, read with section 94 of Act 13 of 1928, I do hereby on the recommendation of the Drugs Control Council, as provided in the said section 61 *bis* (2), amend the Sixth Schedule to the said Act, published under Proclamation 229 of 1966, as amended by Proclamations 102 of 1967, 135 of 1968, R. 158 and R. 300 of 1969, 189 of 1970 and 46 of 1971, as follows:

The substitution for the paragraph with regard to phenothiazine, etc., of the following:

"Phenothiazine and phenothiazine derivatives, their salts; preparations and admixtures containing them when intended for the treatment of human ailments, except preparations containing promethazine or promethazine salts when intended specially for the treatment of travel sickness or local application to the epidermis.".

Given under my Hand and the Seal of the Republic of South Africa at Cape Town on this Twenty-seventh day of April, One thousand Nine hundred and Seventy-one.

J. J. FOUCHÉ, State President.

By Order of the State President-in-Council:

C. DE WET.

PROKLAMASIE

van die Staatspresident van die Republiek van Suid-Afrika

No. R. 115, 1971

WYSIGING VAN DIE SESDE BYLAE VAN DIE WET OP GENEESHERE, TANDARTSE EN APTEKERS, 1928 (WET 13 VAN 1928)

Kragtens die bevoegdheid my verleen by artikel 61 *bis* (2) van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet 13 van 1928), soos gewysig by artikel 15 van Wet 44 van 1969, gelees met artikel 94 van Wet 13 van 1928, wysig ek hierby op aanbeveling van die Medisyne-beheerraad, soos in genoemde artikel 61 *bis* (2) bepaal, die Sesde Bylae van genoemde Wet, afgekondig by Proklamasie 229 van 1966, soos gewysig by Proklamasies 102 van 1967, 135 van 1968, R. 158 en R. 300 van 1969, 189 van 1970 en 46 van 1971, soos volg:

Die vervanging van die paragraaf met betrekking tot fenotiasien, ens., deur die volgende:

"Fenotiasien en fenotiasienderivate, hulle soute; preparate en mengsels wat daarvan bevat wanneer vir die behandeling van menslike kwale bedoel, uitgesonderd preparate wat prometasien of prometasiensoute bevat wanneer dit spesiaal bedoel is vir die behandeling van reissiekte of vir plaaslike aanwending aan die epidermis.".

Gegee onder my Hand en die Seël van die Republiek van Suid-Afrika te Kaapstad, op hede die Sewe-en-twintigste dag van April Eenduisend Negehonderd Een-en-sewentig.

J. J. FOUCHÉ, Staatspresident.

Op las van die Staatspresident-in-rade:

C. DE WET.

Goewermentskennisgewings.

Die volgende Goewermentskennisgewings word vir algemene inligting gepubliseer.

J. J. KLOPPER,
Sekretaris van Suidwes-Afrika.

Kantoor van die Administrateur,
Windhoek.

Government Notices.

The following Government Notices are published for general information.

J. J. KLOPPER,
Secretary for South West Africa.

Administrator's Office,
Windhoek.

DEPARTMENT OF HEALTH

No. R. 734 7 May 1971

SOUTH AFRICAN PHARMACY BOARD

RULES AND MINIMUM CURRICULUM FOR THE DIPLOMA IN PHARMACY

The Minister of Health has, in terms of section 94 (4) of the Medical, Dental and Pharmacy Act, 1928 (Act 13 of 1928), as amended, approved the amendment of the rules and minimum curriculum for the Diploma in Pharmacy, made by the South African Pharmacy Board under section 94 (2) of the Act and published under Government Notice R. 2135 of 4 December 1970, as follows:

1. In rule 6 number the existing paragraph to read paragraph (1) and add the following new paragraph:

"(2) The scope of the examinations shall be in accordance with the syllabuses set out in Appendix A of these rules."

2. After rule 24 add the following Appendix:

"APPENDIX A

BOTANY

A. Theory

Biology, its meaning and scope, and its two great subdivisions, botany and zoology; its value as a cultural and as a pharmaceutical subject. Meaning and scope of the more important subdivisions of biology; taxonomy, morphology, anatomy, physiology, genetics, evolution.

The plant kingdom and its main subdivisions and their features; bacteria, algae, fungi, lichens, bryophytes, pteridophytes, gymnosperms and angiosperms as examples of the diversity of forms of plant life and of evolutionary history and tendencies.

The plant as a living organism; form, function of the roots, stem, leaves, flowers, fruit of a typical green herbaceous land plant and of a woody perennial showing secondary thickening. The influence of the habitat (soil and aerial) on plant organs. Nature of the modifications of organs for special functions. The cell and cell division. The tissues of typical angiosperm—their structure, arrangement and functions in brief. A typical flower—its structure and the functions of the various parts; the fruit and seed-structure, dispersal, germination of seed.

Elements of plant physiology—water-relations, photosynthesis, nutrition, growth, respiration, digestion, tropisms in relation to gravity, light, water, storage of reserves. Parasitism, saprophytism, epiphytism.

A brief comparative study of the form, structure, life-history and reproduction of *Bacillus subtilis,* Tobacco Mosaic Virus *Chlamydomonas, Spirogyra,* Diatome, *Fucus, Rhizopus nigricans, Saccharomyces, Claviceps, Penicillium, Agaricus* (*Psalliota*), *Funaria, Drypteris, Pinus,* a typical Monocotyledon, a typical Dicotyledon.

Principles of taxonomy as illustrated by a brief study of the representative of the following families: Liliaceae, Gramineae, Ranunculaceae, Leguminosae, Solanaceae, Compositae, Labiatae, Scrophulariaceae.

B. Practical

The examination, dissection, macroscopic and microscopic examination, description and drawing of plant material drawn from the list given above; demonstrations of ecological and physiological features to be arranged. The examination should aim at determining the powers of observation of the candidate, his capacity for describing and drawing faithfully what he has seen, and his capacity for interpreting botanical phenomena.

DEPARTEMENT VAN GESONDHEID

No. R. 734 7 Mei 1971

SUID-AFRIKAANSE APTEKERSKOMMISSIE

REËLS EN MINIMUM LEERGANG VIR DIE DIPLOMA IN FARMASIE

Die Minister van Gesondheid het kragtens artikel 94 (4) van die Wet op Geneeshere, Tandartse en Apiekers, 1928 (Wet 13 van 1928), soos gewysig, sy goedkeuring geheg aan die wysiging van die reëls en minimum leergang vir die Diploma in Farmasie, wat deur die Suid-Afrikaanse Aptekerskommissie kragtens artikel 94 (2) van die Wet gemaak is en afgekondig is by Goewermentskennisgewing R. 2135 van 4 Desember 1970, soos volg:

1. In reël 6 nommer die bestaande paragraaf sodat dit paragraaf (1) lui en voeg die volgende nuwe paragraaf by:

"(2) Die bestek van die eksamens moet in ooreenstemming wees met die leerplanne wat in Aanhangsel A van hierdie reëls uiteengesit is"

2. Voeg die volgende Aanhangsel na reël 24 by:

"AANHANGSEL A

CHEMIE I

Afdeling 1.—*Algemene en Fisiese Chemie*

1.1 Atoomstruktuur en die Periodieke Tabel.
1.2 Algemene eienskappe van die elemente.
1.3 Bindingsvermoë.
1.4 Stoïgiometrie.
1.5 Ekwivalente massas en die bepalings daarvan.
1.6 Die gastoestand.
1.7 Die vloeibare en vaste toestande.
1.8 Oplossings en metodes om konsentrasies uit te druk.
1.9 Kolloïede.
1.10 Saambindende eienskappe.
1.11 Elektrochemie.
1.12 Sure en basisse.
1.13 Chemiese ewewig.
1.14 Termochemie

Afdeling 2.—*Anorganiese en Analitiese Chemie*

2.1 Indeling van chemiese reaksies en reagense.
2.2 Balansering van vergelykings.
2.3 Die sistematiese beskrywende en vergelykende chemie van uitgesoekte elemente.
2.4 Teorie van volumetriese analise.
2.5 Teorie van kwalitatiewe analise.

Afdeling 3.—*Organiese Chemie*

3.1 Inleiding. Organiese formuletipes.
3.2 Struktuur- en stereo-isomerie.
3.3 Formele en triviale benamings.
3.4.1 *Alifatiese verbindings.*—'n Oorsig van basiese reaksieweë en die formele chemie van alkane, alkene, alkyne, haloalkane, polihalogeenderivate van alkane, alkohole, aldehiede, ketone, eters, amiene, karboksielsure, suurchloriede, suuranhidriede, suuramiede, esters, nitriele.
3.4.2 *Aromatisiteit in bensenoïede sisteme.*—Met verwysing na die bereiding en reaksies van benseen, tolueen, chloorbenseen, fenol, bensaldehied, bensoësuur, benseensulfoonsuur, nitrobenseen, anilien.

Afdeling 4.—*Praktiese Chemie*

4.1 Kwalitatiewe analise van uitgesoekte katione en anione.
4.2 *Volumetriese analise.*—Standaardiserings-, neutralisasie-, en presipitasietitrasies en redokstitrasies.
4.3 *Organiese analise*
4.3.1 Kwalitatiewe bepaling van stikstof, swael en halogeen in organiese verbindings.
4.3.2 Kenmerkende reaksies van uitgesoekte funksionele groepe.

CHEMISTRY I

Section 1.—General and Physical Chemistry

1.1 Atomic structure and the Periodic Table.
1.2 General properties of the elements
1.3 Combining power.
1.4 Stoichiometry.
1.5 Equivalent masses and their determination.
1.6 The gaseous state.
1.7 The liquid and solid states.
1.8 Solutions and methods of expressing concentration.
1.9 Colloids.
1.10 Colligative properties.
1.11 Electrochemistry.
1.12 Acids and bases.
1.13 Chemical equilibrium.
1.14 Thermochemistry.

Section 2.—Inorganic and Analytical Chemistry

2.1 Classification of chemical reactions and reagents.
2.2 Balancing of equations.
2.3 The systematic descriptive and comparative chemistry of selected elements.
2.4 Theory of volumetric analysis.
2.5 Theory of qualitative analysis.

Section 3.—Organic Chemistry

3.1 Introduction. Types of organic formulae.
3.2 Structural and stereoisomerism.
3.3 Formal and trivial nomenclature.
3.4.1 *Aliphatic compounds.*—A review of basic reaction routes and the formal chemistry of alkanes, alkenes, alkynes, haloalkanes, Polyhalogen derivatives of alkanes, alcohols, aldehydes, ketones, ethers, amines, carboxylic acids, acid chlorides, acid anhydrides, acid amides, esters, nitrillis.
3.4.2 *Aromatically in benzenoid sytems.* — With reference to the preparation and reactions of benzene, toluene, chlorobenzene, phenol, benzaldehyde, benzoic acid, benzenesulphonic acid, nitrobenzene, aniline.

Section 4.—Practical Chemistry.

4.1 Qualitative analysis of selected cations and anions
4.2 *Volumeric analysis:* Standardisation, neutralisation, redox and precipitation titrations.
4.3 *Organic analysis:*
4.3.1 Qualitative determination of nitrogen, sulphur and halogen in organic compounds.
4.3.2 Characteristic reactions of selected functional groups.

CHEMISTRY II

Section 1.—Physical Chemistry

1.1 Gases, liquids and solids.
1.2 Chemical bonding.
1.3. Solutions and phase equilibria.
1.4 Chemical kinetics.
1.5 Ionic equilibria.
1.6 Electrochemistry.
1.7 Nuclear and radiochemistry.

Section 2.—Analytical Chemistry

2.1 The principles of volumetric analysis.
2.2 Chromatographic techniques.
2.3 An introduction to instrumental techniques in analysis.

CHEMIE II

Afdeling I.—Fisiese Chemie

1.1 Gasse, vloeistowwe en vaste stowwe.
1.2 Chemiese binding.
1.3 Oplossings en fase-ewewigte.
1.4 Chemiese kinetika.
1.5 Ioniese ewewigte.
1.6 Elektrochemie.
1.7 Kern- en radiochemie.

Afdeling 2.—Analitiese Chemie

2.1 Die beginsels van volumetriese analise.
2.2 Chromatografiese tegnieke.
2.3 'n Inleiding tot instrumentele tegnieke van analise.

Afdeling 3.—Anorganiese Chemie

3.1 Die sistematiese en vergelykende chemie van uitgesoekte elemente.
3.2 Komplekse.

Afdeling 4.—Organiese Chemie

4.1 Metodes van suiwering en bepaling van fisiese konstantes.
4.2 Die bepaling van molekulêre formules van uitgesoekte verbindings.
4.3 'n Meer gevorderde bespreking van stereo-isomerie.
4.4 Prototropie en uitgesoekte molekulêre omskakelings.
4.5 Bespreking van die chemie van uitgesoekte klasse van verbindings uit die alifatiese, karbosikliese, aromatiese en hetrosikliese reekse met beknopte illustrasies van die toepassing van instrumentele metodes soos infrarooi en massaspektrometrie vir opklaring van struktuur.

Afdeling 5.—Praktiese Chemie

5.1 Kwalitatiewe analise van die elemente.
5.2 Volumetrise analise: Standardiserings-, neutralisasie-, presipitasie-, redoks-, kompleksometriese- en adsorpsietitrasies.
5.3 Instrumentele analise.
5.4 Bereiding en suiwering van organiese verbindings op semimikroskaal.

DIERKUNDE

A. *Teorie*

1. Klein soogdier (bv. rot, konyn, marmot of kat)—uitwendige kenmerke, vel en aangehegte strukture. Spysverteringsstelsel—hoofdele van die spysverteringskanaal en aangehegte strukture. Ensieme en hormone—oorsig van hul funksies by vertering.
Peristalsis.
Mond—slym, ptialien. Maag—pepsien, HCl, rennien.
Pankreas—tripsinogeen, steapsien, amilopsien.
Dunderm—erepsien, enterokinase, lipase, Lewer—galpigmente en -soute.
Rektum—absorpsie van water, uitwerping van onverteerde voedsel, uitskeiding vanuit die bloedvate van die wande.
Bloedvatstelsel—hart, belangrikste bloedvate.
Aard van arteriee, venes, poortare, kapillêre.
Funksies van bloedvervoer, beskerming (fagositose, stolling, agglutinasie).
Handhawing van konstante temperatuur.
Respiratoriese stelsel.
Senustelsel—rugmurg en senuwees: Brein en kopsenuwees.
Simpatiese stelsel—refleksboog. Funksies van dele in die algemeen.

Section 3.—Inorganic Chemistry

3.1 The systematic and comparative chemistry of selected elements.

3.2 Complexes.

Section 4.—Organic Chemistry

4.1 Methods of purification and determination of physical constants.

4.2 the determination of molecular formulae of selected compounds.

4.3 A more advanced discussion of stereoisomerism.

4.4 Protropy and selected molecular rearrangements.

4.5 Discussion of the chemistry of selected classes of compounds drawn from the aliphatic, carbocyclic, aromatic and heterocyclic series with brief illustrations of the application of instrumental methods such as infrared and mass spectrometry to the elucidation of structure.

Section 5.—Practical Chemistry

5.1 Qualitative analysis of the elements.

5.2 Volumetric analysis: Standardisation, neutralisation, precipitation, redox, complexometric and adsorption titrations.

5.3 Instrumental analysis.

5.4 Preparation and purification of organic compounds on semimicro scale.

FORENSIC PHARMACY

Candidates will be examined on their knowledge of the following legislation, in so far as it has a bearing on the practice of pharmacy:

1. Medical, Dental and Pharmacy Act (No. 13 of 1928), as amended, particularly in regard to the following:

Chapter I: Sections 2, 3, 8 and 9.
Chapter II: Sections 14-18, inclusive, 24, 24A, 27A and 33.
Chapter III: Section 37.
Chapter IV: The whole, except section 44.
Chapter V: The whole.
Chapter VI: The whole.
Chapter VII: Sections 73, 75, 76, 76 *bis*, 77 to 82 (except 80 *bis*), inclusive, 84, 87–90, inclusive, 95 and 96.

Second, Fourth, Fifth and Sixth Schedules.

Candidates will be required to have a knowledge of the English and Afrikaans names of poisons of the Fourth and Fifth Schedules and of the poisonous substances mentioned in section 82.

Regulations under the Medical, Dental and Pharmacy Act Regulations promulgated for the carrying out of the provisions of Chapters 5 and 6 and in particular:

(a) Regulations regarding the importation, sale and use of opium and other habit-forming drugs, including Annexure A.

(b) Recognised formularies.

(c) Labelling of potentially harmful drugs.

(d) List of poisonous substances.

(e) Distribution of certain poisons on behalf of the Government.

(f) Labelling and sale of poisons, including Lists A, B, C and D.

(g) Preparations exempted from Chapter 4.

FARMAKOGNOSIE

Teorie

Kennis van die onderstaande word van die kandidaat verwag:

1. Die geskiedenis en ontwikkeling van Farmakognosie.
2. Die klassifikasiemetodes wat toegepas word by die studie van natuurlike produkte.
3. Die studie van natuurlike produkte met verwysing na die biologiese en geografiese bronne, kweek, versameling en voorbereiding vir die mark, handelsvariëteite, vervalsing, opberging, evaluering, bestanddele en hul werking en gebruike. Hierdie aspekte moet behandel word waar dit van toepassing is en soos bepaal deur die huidige belangrikheid daarvan vir die farmaseutiese en mediese wetenskappe.

Skeletstelsel—werwelkolom, skedel, ledemateskelet.
Name van bene—funksies—aanhegting van spiere, ondersteuning, beskerming.
Urogenitale stelsel—niere, geslagskliere, buise en aanverwante kliere.
Plasenta.
Endokriene stelsel—belangrikste kliere en hul funksies in die algemeen.
2.Mikroskopiese anatomie van soogdier—struktuur en fisiologie.
Dierselle—struktuur en vermenigvuldiging. Mitose, Meiose.
Epiteelweefsel—tragea, esofagus, maag, ingewande, vel, lewer, pankreas, nier.
Bindweefsel—los, digte (elastiese, kollagene, en retikulêre); vet-, pigment-, limf- en longweefsel; been, kraakbeen en bloed (met inbegrip van stolling).
Spierweefsel—gestreepte, hart- en gladde.
Senuweefsel—ganglia en sinapse, neuroglia.
Sensoriese organe en weefsels—smaakknoppies, eindknoppies, liggaampies van Paccini, eindplate, spierspoele, vry senu-uiteindes, reukepiteel, oog, oor.
Geslagsorgane—testis, ovarim, gametogenese, geslagsbepaling.
3. Klassifikasie in hooftrekke—basiese beginsels van klassifikasie; groepering van diere in spesies, geslagte, families, klasse, stamme.
4. Algemene studie van die volgende invertebrata:

Protozoa—*Amoeba, Entamoeba, Trichomonas, Trypanosoma, Plasmodium, Babesia.*

Nemathelminthes—*Trichocephalus (Trichuris), gyloides, haakwurm, Enterobius, Ascaris.*

Platyhelmintes—*Schistosoma, Fasciola, Taenia, Echinococcus.*

Arthropoda—kreef of kakkerlak of sprinkaan (algemene morfologie). Weeluis, muskiet, vlooi, tsetsevlieg, huisvlieg, luis en kewer (alleenlik eksterne bou, monddele en lewensloop).

Arachnida—bosluise en myte (eksterne bou, lewensloop en gashere.
5. Parasitisme.
6. Oorerwing—Mendelse oorerwing soos geïllustreer deur die oorerwing van eenvoudige en geslagsgebonde kenmerke.
7. Embriologie van die padda.

B.—Prakties

Die volledige disseksie van die stelsels (uitgesonderd die spierstelsel) van 'n klein soogdier, kreef of kakkerlak of sprinkaan.

Uitkenning van die bene van die skelet, en van skyfies wat die makroskopiese struktuur toon van diere of dele van diere wat in die teoretiese leerplan genoem word.

Rules under the Medical, Dental and Pharmacy Act ınd in particular:

(a) Rules regarding conduct of which the Board may ake cognizance.

(b) Registration of unqualified assistants.

(c) Furnishing of information to Registrar concerning ›harmacies with which a registered chemist and druggist s connected.

(d) Payment of annual fees.

Therapeutic Substances Regulations:

In so far as they affect the practice of pharmacy and n particular:

Part I: Regulations 1-4 *bis*, inclusive.
Part II: Regulation 5.
Part III: Regulations 20, 21 and 22.
Part VII: Regulations 68-89 *bis*, inclusive.
Part VIII: Regulations 90-92, inclusive.
Part X: Regulations 94-46, inclusive.

General knowledge of items falling under the provisions ıf the Schedules.

2. Liquor Act and Regulations: Sections 5, 130, 131, 40 and 175 and regulations regarding sections 130 and 31.

3. Public Health Act: In so far as it affects the practice f pharmacy and in particular sections 65 and 139.

4. The Foods, Drugs and Disinfectants Act and Regulations: In so far as they affect the practice of ›harmacy.

5. The Fertilizers, Farm Feeds and Remedies Act and Regulations: In so far as they affect the practice of ›harmacy.

6. Drugs Control Act and Regulations: In so far as hey affect the practice of pharmacy and in particular sections 1, 2, 14, 18, 19, 20, 28, and 32. Regulations 1, , 3, 6 and 10.

Note.—The above knowledge will extend to any mendments to the specified sections or schedules and › any rules or regulations thereanent or amendments ıereof published on or before 30 April of the current ear.

HEALTH EDUCATION

Aim.—To provide the chemist and druggist with basic ackground knowledge and to prepare him to provide, ı his practice and within the framework of his profession, ıformation and advice to the public on matters of impor- ınce in the field of public health.

SECTION I

A Study of the Community

(A) Sociological background.

(B) Particular circumstances within the community :quiring health education:

(a) Introduction:

(i) Basic physiological processes and their relationship › disease.

(ii) Health education as a factor in the prevention of sease.

(iii) Basic functions of the health educator.

(iv) Habit-formation; the rôle of incentive bonuses.

(b) The family.

(c) The general community.

4. Chirurgiese wonddekkings en suture.

5. Die belangrikste inheemse giftige plante.

Prakties

Kandidate moet tot onderstaande in staat wees:

1. Die ondersoek en beskrywing van die makroskopiese eienskappe van ru-artsenymiddels.

2. Die mikroskopiese ondersoek en beskrywing van ru-artsenymiddels, op sigself verontreinig en/of mengsels.

3. Die uitvoering van fitochemiese voorproewe op plante en uitvoering van tegnieke wat gebruik word by die analise van natuurlike produkte.

4. Die uitvoering van offisiële identifikasietoetse op natuurlike produkte en suiwer stowwe van natuurlike oorsprong.

5. Die ondersoek en beskrywing van materiaal met betrekking tot die vesels wat daarin aanwesig is en die verspreiding daarvan.

FARMAKOLOGIE

Teorie

1. *Die omvang van Farmakologie.*

2. *Oordrag van geneesmiddels en farmakodinamika*

(a) Absorpsie van middels in die organisme en faktore wat sodanige absorpsie beïnvloed.

(b) Verspreiding van middels in die organisme en faktore wat sodanige verspreiding beïnvloed:

(i) Passiewe vervoer van middels.
(ii) Aktiewe vervoer van middels.

(c) Metabolisme van geneesmiddels en faktore wat sodanige metabolisme beïnvloed.

(d) Uitskeiding van geneesmiddels en faktore wat sodanige uitskeiding beïnvloed.

3. *Geneesmiddel-reseptorinteraksies.*

(a) Interaksie van een of meer middels met een reseptorsisteem:

(i) Chemiese struktuur en werking.
(ii) Dosisreaksiekurwes.
(iii) Kompetitiewe interaksie.
(iv) Affiniteit en intrinsieke aktiwiteit.

(b) Interaksie van een of meer middels met verskillende reseptorsisteme:

(i) Nie-kompetitiewe interaksies.
(ii) Chemiese antagonisme.
(iii) Funksionele interaksies.
(iv) Verbindings met veelvoudige werkings.
(v) Spesifieke en nie-spesifieke geneesmiddelwerking.
(vi) pH en werking van geneesmiddels.

(c) Die verband tussen stimulus en effek:

(i) Alles-of-niks-reaksie.
(ii) Drumpelverskynsels.
(iii) Reseptoreserwe.

4. *Inleiding tot geneesmiddelontwerp.*

5. *Middels met 'n werking op die senustelsel.*

(a) Middels met 'n werking op die perifere senustelsel:

(i) Die alfa- en beta-simpatomimetiese en die alfa- en beta-simpatolitiese middels.

(ii) Indirekte simpatommetiese en simpatolitiese middels.

(iii) Parasimpatomimetiese en parasimpatolitiese middels.

(iv) Ganglion-stimulerende en -blokkerende middels.

SECTION II

The Principles of Health Education and Teaching

(a) The nature and meaning of health education.
(b) Current aims of education and their relation to health education.
(c) The process of learning; different forms of learning; factors influencing the process of learning.
(d) The general principles of tuition; application of methods of tuition to health education.
(e) The principles of communication; application of methods of tuition to health education.
(f) Techniques of health education.
(g) Sources of health education information material.

SECTION III

Health Problems of Importance in South Africa

(a) Enviromental factors.
(b) Health aspects of water.
(c) Personal hygiene and fitness.
(d) Mothercraft, baby care and feeding, family planning.
(e) Health aspects of food and nutrition.
(f) Factors which cause disease.
(g) The spread and prevention of infectious and other communicable diseases.
(h) Epidemic and other notifiable diseases.
(i) Common diseases of children.
(j) Other general diseases of importance.
(k) Insects and insect control.
(l) Mental health and the dangers of the abuse of medicines and particularly of dependence-producing drugs abuse of alcohol and tobacco.
(m) Prevention of poisoning.
(n) The pharmacist as member of a health team.
(o) Relevant aspects of health legislation.

PHARMACEUTICS I

Theory

1. *General*

(i) Introduction and orientation of the student to the modern practice of pharmacy, and the scope of pharmaceutics in the parmacy curriculum.

(ii) Classification of medicinal preparations and general principles of the modern scientific approach in the design of dosage forms.

(iii) Pharmacopoeias and formularies, and their use; drug nomenclature.

(iv) Systems of measurement used in pharmacy and methods of calculation used in dispensing.

(v) Weighing and measuring; pharmaceutical balances and their sensitivity and capacity. The correct choice of volumetric measures.

2. *Physical Pharmacy*

Principles of those fields of physical chemistry which are of importance in pharmaceutical manipulations and in the design of medicinal dosage forms, and which involve a study of the following with special reference to their pharmaceutical applications:

(i) Change of state. Solid-liquid-gas equilibria and transformations and factors affecting them. The phase rule. Efflorescence and deliquescence.
(ii) Polymorphism of drugs.
(iii) Solutions and solubility. Colligative properties of solutions.
(v) Kurariforme middels.
(vi) Nie-spesifieke muskulotrofiese middels.
(b) Middels met 'n werking op die sentrale senustelsel:
(i) Stimulanse van die sentrale senustelsel en dopaminergiese middels.
(ii) Depressiva van die sentrale senustelsel en dopaminolitiese middels.
(iii) Middels wat gedrag beïnvloed.
(iv) Analgetica en antipyretica.
(v) Middels wat die hoessentrum onderdruk.

6. *Histaminergiese middels en antihistaminica.*

7. *Geneesmiddels en allergie.*

8. *Geneesmiddels en die behandeling van brongopatie en rinopatie.*

9. *Plaaslike anestetika.*

10. *Geneesmiddels en die spysverteringskanaal.*

(i) Middels met 'n werking in die mond, keel en esofagus.
(ii) Emetica en anti-emetica.
(iii) Teësure, absorbeermiddels en carminativa.
(iv) Lakseermiddels.

11. *Geneesmiddels en die kardiovaskulêre stelsel*

(i) Hartglikosiede.
(ii) Middels wat die hartspier onderdruk.
(iii) Dilateermiddels vir koronêre bloedvate.
(iv) Middels wat hipertensie teëwerk.
(v) Middels wat die bloedcholesterolspieël verlaag.

12. *Middels wat die water- en soutbalans beïnvloed*

(i) Suur-basisbalans en intraveneuse vloeistofterapie.
(ii) Diuretica en antidiuretica.
(iii) Die ione (kalium, kalsium, magnesium, fluoried, jodied, ens.)

13. *Geneesmiddels en die bloedvormende stelsel*

(i) Middels wat effektief teen bloedarmoede is.
(ii) Stollingsteëmiddels- en stollingsmiddels.

14. *Die hormone*

(i) Hormone van die hipofise.
(ii) Estrogene, progestogene en androgene, insluitende orale geboortebeperkende middels.
(iii) Anaboliese steroïede.
(iv) Hormone van die bynierkorteks.
(v) Adrenalien.
(vi) Tiroïedhormone en antitiroïdemiddels.
(vii) Insulien en orale antidiabetica.

15. *Vitamiene en antivitamiene.*

16. *Ensieme en terapeutiese stowwe.*

17. *Immunisasie.*

18. *Chemoterapeutiese middels*

(i) Middels in gebruik teen bakteriële infeksies.
(ii) Middels in gebruik teen fungusinfeksies.
(iii) Middels in gebruik teen protosoïese infeksies.
(iv) Middels in gebruik teen infeksies wat deur flagellate en botte veroorsaak word.
(v) Middels in gebruik teen infeksies wat deur Nematoda en Cestoda veroorsaak word.
(vi) Chemoterapie van kanker.

19. *Gasse, dampe en lugbesoedeling.*

20. *Insekdoders en knaagdierdoders.*

21. *Ontsmettingsmiddels, bakterisiede en bakteriostatikums.*

22. *Onkruiddoders.*

(iv) The colloidal state. Coarse suspensions and colloidal dispersions: their properties, methods of preparation and stabilisation. Stokes' law and its applications.

(v) Surface and interfacial phenomena:—adsorption, surface and interfacial tension, surface-active agents. Emulsions and emulsifying agents.

(v) The flow properties of fluids and plastics systems—viscosity, rheology and gel formation.

(vii) The applications of ionisation and hydrogen ion concentration in pharmacy; theory and applications of ion exchange.

Practical

1. *General*

(i) Familiarisation with the apparatus used in a pharmaceutical laboratory and with the general layout, requirements and conduct of a dispensing department in a modern pharmacy.

(ii) The correct use of weighing and measuring equipment.

(iii) The correct manner of storing drugs.

2. The interpretarion of prescriptions in both official languages and the dispensing of a selected range of medicinal dosage forms.

3. The preparation of a selected range of official compounded formulae of the British Pharmacopoeia and British Pharmaceutical Codex.

PHARMACEUTICS II

Theory

1. Pharmaceutical Operations and Principles of Manufacture.

The folowing unit processes are examined with particular emphasis on the maintenance of high standards in the pharmaceutical manufacturing industry with respect to product quality and uniformity:

(i) Extraction processes. Principles of drug extraction and their application to large-scale methods. Maceration, percolation, infusion and other methods of extraction of crude drugs of natural origin.

(ii) Processes involving heat transfer. A general consideration of the problems encountered in the supply and transfer of heat in manufacturing operations:

(a) *Evaporation.*—Basic theory and its application in the design and operation of typical large scale evaporators.

(b) *Drying.*—Principles involved and pharmaceutical considerations; a study of the various types of plant in common use, including freeze-driers.

(c) *Distillation.*—The distillation of miscible and immiscible liquid systems and the preparation of Purified Water. Destructive distillation.

(iii) Particle size reduction and mixing:

(a) Comminution of solid material and reduction of globule size in emulsions.

(b) Mixing.

(c) Particle size separation; measurement of particle and globule size.

(iv) Clarification of fluids:—filtration, sedimentation, centrifugation.

(v) The choice of materials for the construction of pharmaceutical plant.

2. A study of galenical products of the B.P. and B.P.C. and other official compounded formulae.

3. A study of the properties and uses of pharmaceutical adjuvants in formulation.

23. *Biochemiese individualiteit, farmakologiese individualiteit, farmakogenetika.*

Prakties

1. *Geneesmiddeloordrag.*

2. *Die gebruik van geïsoleerde orgaansisteme om die volgende te demonstreer:*

(a) Kompetitiewe antagonisme.
(b) Kompetitiewe dualisme.
(c) Nie-kompetitiewe antagonisme.

3. Bepaling van affiniteite en intrinsieke aktiwiteite van verskeie geneesmiddels.

4. Die uitwerking van verskeie middels op die bloeddruk, hartspoed en respirasie van genarkotiseerde diere.

5. Kwantitatiewe bepaling van die uitwerking wat stimulanse en depressiva van die sentrale senustelsel op die lokomotoriese aktiwiteit van proefdiere het.

6. Capita selecta.

Farmaseutiese Chemie

Kursus I:

A. Medisinale Chemie.
B. Farmaseutiese Analise.
C. Prakties.

Kursus II:

D. Medisinale Chemie.
E. Farmaseutiese Analise.
F. Prakties.

Farmaseutiese Chemie I

A. *Medisinale Chemie*

1. *Anorganies.*—(a) 'n Studie van die bereiding, reaksies en onsuiwerhede van anorganiese farmaseutiese verbindings met verwysing na die werking en gebruike van hierdie verbindings.

(b) Teorie en die mediese toepassing van radioaktiewe farmaseutiese verbindings en preparate.

(c) Röntgenografie en kontrasmiddels.

2. *Organies.*—(a) 'n Studie van farmaseutiese verbindings met spesiale verwysing na sintese, onsuiwerhede, fisiese eienskappe wat die terapeutiese aktiwiteit beïnvloed, toksisiteit en die verband tussen struktuur en werking:

(i) Natuurlike verbindings met verwysing na die vorming van sintetiese geneesmiddels daaruit, met inbegrip van elementêre aspekte van die biosintese.

(ii) Uitgesoekte sintetiese geneesmiddels en geneesmiddelgroepe.

(b) Die metabolisme van uitgesoekte geneesmiddels en geneesmiddelgroepe.

B. *Farmaseutiese Analise*

1. Kwalitatiewe reaksies en grenstoetse met die oog op die identifikasie en die bepaling van die suiwerheid van organiese en anorganiese farmaseutiese verbindings.

2. Toepassing van elementêre fisiese metodes op die bepaling van die identiteit, suiwerheid, gehalte en terapeutiese aktiwiteit van farmaseutiese verbindings en preparate.

3. Analise van vette en olies van farmaseutiese belang.

4. Kwantitatiewe bepaling van bestanddele van geneesmiddels.

5. Diverse analitiese metodes soos van toepassing op geneesmiddels en doseringsvorme daarvan.

4. *Basic Microbiology*

(i) Introduction and historical development of the subject.

(ii) Bacteriology:

(a) Nomenclature, classification, morphology, reproduction, identification, isolation of specific types, and factors affecting the growth of bacteria.

(b) The composition and uses of culture media in the cultivation and examination of bacteria.

(c) Bacterial biochemistry and staining methods.

(d) Bacterial enumeration.

(e) Distribution and occurrence of bacteria in the environment.

(iii) Moulds and yeast: classification and differentiation, general characteristics, growth requirements, pathogenic types. Their usefulness in the biosynthesis of antibiotics etc.

(iv) Rickettsiae—general characteristics.

(v) Viruses—their classification, characteristics and properties, and methods of caltivation. Bacteriphages.

(vi) Mutation and variation in bacteria and viruses—consequences and ecological considerations.

Practical

1. The dispensing and compounding of those dosage forms and official preparations not undertaken during Pharmaceutics I.

2. *Pharmaceutical Technology.*—(i) The student will be expected to become acquainted with the use of the following types of equipment in pharmaceutical preparative work: Filtration apparatus; evaporating, distilling, condensing and drying equipment. Homogenisers, comminuting and particle size separation equipment; apparatus for measurement of particles in suspensions and globules in emulsions.

(ii) Investigation of the physico-chemical properties of pharmaceutical adjuvants, and of their uses as suspending, dispersing, emulsifying, solubilising, thickening and gelling agents.

(iii) The measurement and control of pH in pharmaceutical preparations.

(iv) Measurement of density of fluids.

3. *Microbiology.*—Application of the theory syllabus with emphasis on the cultivation and isolation of various types of micro-organisms, biochemical tests and staining methods, bacterial enumeration and microscopic studies.

PHARMACEUTICS III

Theory

1. *Formulation of medicines*

(i) The general approach to modern drug formulation, and choice of dosage form and route of administration. Pharmaceutical, chemical, pharmacological, microbiological and biopharmaceutical considerations in the design of formulae and choice of adjuvants.

(ii) A detailed study of the various dosage forms which are in current use with emphasis on formulation, methods of preparation and standardisation in the production of medicines of optimal therapeutic activity, elegance, stability and convenience of administration.

(iii) The stabilisation of pharmaceutical products; methods of eliminating or limiting microbial contamination, and its importance in various dosage forms. The evaluation of stability.

(iv) The importance of particle size in the formulation of medicaments and the processing of drugs.

(v) Presentation and packaging of pharmaceutical preparations, and package testing methods.

C. *Prakties*

Praktiese toepassing van al die analitiese metodes en beginsels waarvan die teorie onder Farmaseutiese Analise behandel is.

Farmaseutiese Chemie II

D. *Medisinale Chemie*

'n Studie van die volgende geneesmiddels en geneesmiddelgroepe met spesiale verwysing na die sintese, onsuiwerhede, fisiese eienskappe wat die terapeutiese aktiwiteit beïnvloed, toksisiteit en die verband tussen struktuur en werking:

Katesjolamiene en verwante verbindings.
Kwaternêre ammoniumverbindings.
Histamien, antihistamiene en fenotiasienderivate.
Barbiturate, hipnotika en xantienderivate.
Anestetika.
Analgetica met inbegrip van antipyretica.
Kortikoïede en geslagshormone.
Stikstofmosterdverbindings en ander sitostatiesemiddels.
Antibiotika.
Sulfoonamiede, sulfone en orale antidiabetica.
Insulien.
Stollingsteënmiddel en vitamien K.
Knaagdierdoders, insekdoders, plantdoders.
Vitamiene.

E. *Farmaseutiese Analise*

Toepassing van die volgende metodes op die bepaling van die identiteit, suiwerheid en gehalte van farmaseutiese verbindings en preparate:
Spektrometrie.
Eletrometrie.
Potensiometrie en polarografie.
Chromatografie.
Katioon-anioontitrasies.
X-straaldiffraksie.
Kompleksometrie.

F. *Prakties*

1. Toepassing van die metodes wat onder E behandel word op farmaseutiese doseringsvorme.

2. Uitoefening van analitiese kontrole oor farmaseutiese preparate.

3. Die sintese, opsporing van onsuiwerhede en algemene reaksies van uitgesoekte voorbeelde van farmaseutiese verbindings wat onder D behandel word.

FARMASEUTIKA I

Teorie

1. *Algemeen*

(i) Inleiding en oriëntering van die student ten opsigte van die moderne praktyk van farmasie; die bestek van Farmaseutika in die Farmasieleergang.

(ii) Klassifikasie van medisinale preparate en algemene beginsels van die moderne wetenskaplike benadering by die ontwerp van doseringsvorme.

(iii) Farmakopees en formuleboeke en die gebruik daarvan; benamingsstelsel vir geneesmiddels.

(iv) Stelsels van meting wat in Farmasie gebruik word en berekeningsmetodes in gebruik by reseptering.

(v) Weging en afmeting; farmaseutiese balanse tesame met die sensitiwiteit en kapasiteit daarvan. Die korrekte keuse van volumetriese maatglasse.

2. *Applied pharmaceutical microbiology*

(i) *Sterilisation methods.*—(a) A critical appraisal of the various methods of sterilisation applicable to medicinal preparations, dressings and equipment used in the medical and pharmaceutical professions.

(b) The testing for sterility of these items.

(ii) *Aseptic technique.*—The design and operating conditions of a laboratory for the preparation or manufacture of sterile products requiring aseptic manipulation. Sources of contamination and their elimination.

(iii) *The formulation and preparation of sterile medicaments.*—(a) Products for perenteral administration, and their routes of injection. Pyrogens. Plasma substitutes and blood products.

(b) Ophthalmic preparations and other products which may be required in sterile form.

(iv) *Chemical disinfection.*—(a) The activity, mode of action, formulation and presentation of disinfectants and other antimicrobial substances which are used for the disinfection of, or limiting of microbial growth in, rooms and atmospheres, pharmaceutical materials apparatus or preparations, or which are applied topically to the skin or mucous membranes, but excluding those disinfectants such as chemotherapeutic agents which are used solely for the treatment of infections within the body.

(b) The evaluation of disinfectants.

(v) *Antibiotics.*—The occurrence, stability, methods of production and formulation of a selected number of antibiotics in common use, and their standardisation by biological methods where applicable.

(vi) *Immunology.*—(a) A general outline of the processes of infection and of the defence mechanisms of the body.

(b) A detailed study of the preparation, properties and uses of antigen and antibody products of various types, including diagnostic preparations, which are in current use.

3. *Biopharmaceutics*

(i) Pharmaceutical factors affecting drug absorption.

(ii) Utilisation of the distribution characteristics of drugs in the various tissues of the body, and of pharmacokinetic principles in the choice of routine of administration, dose and dosage form of medicaments.

(iii) Utilisation of biopharmaceutical principles and parameters in the formulation of dosage forms, especially prolonged action medicaments, and their evaluation.

Practical

1. The formulation of pharmaceutical products for maximum therapeutic activity and stability, and the stability testing of these products.

2. *Applied microbiology.*—(i) The formulation and preparation of parenteral, ophthalmic, and other medicaments in sterile form. Aseptic procedures.

(ii) The sterilisation of medicaments, dressings and pharmaceutical equipment by established methods, and the evaluation of sterilisation methods. Testing for sterility.

(iii) The evaluation of chemical disinfectants.

(iv) The preparation of vaccines.

3. *Drug evaluation.*—The practical application of biopharmaceutical methods of evaluation of formulated medicaments using in vitro and/or in vivo techniques, with special emphasis on unit oral dosage forms.

2. *Fisiese Farmasie*

Beginsels van dié afdelings van Fisiese Chemie wat van belang is by farmaseutiese bewerking en by die ontwerp van doseringsvorme, en wat 'n studie van die volgende, met spesiale verwysing na die farmaseutiese toepassings daarvan, behels:

(i) Toestandsverandering. Vaste Stof-vloeistof-gas: ewewigte en omsettings, en faktore wat daarop betrekking het. Die fasereël. Effloressensie en vervloeiing.

(ii) Polimorfisme van geneesmiddels.

(iii) Oplossings en oplosbaarheid. Kolligatiewe eienskappe van oplossings.

(iv) Die kolloïdale toestand. Growwe suspensies en kolloïdale dispersies: eienskappe, bereidingsmetodes en stabilisering. Stokes se wet en die toepassings daarvan.

(v) Oppervlak- en tussenvlakverskynsels: absorpsie, oppervlak- en tussenvlakspanning, oppervlakaktiewe stowwe. Emulsies en emulgeermiddels.

(vi) Die vloei-eienskappe van vloeistowwe en plastiese sisteme viskositeit, reologie en jelvorming.

(vii) Die toepassings van ionisasie en waterstofioonkonsentrasie in Farmasie; teorie en toepassings van ioonuitruiling.

Prakties

1. *Algemeen*

(i) Bekenstelling met die apparaat wat in 'n farmaseutiese laboratorium gebruik word en met die algemene uitleg, vereistes en beheer van die reseptuurafdeling in 'n moderne apteek.

(ii) Korrekte gebruik van weeg- en meetapparaat.

(iii) Korrekte wyse van opberging van geneesmiddels.

2. Interpretasie van voorskrifte in albei amptelike tale en die reseptering van 'n uitgesoekte reeks doseringsvorme.

3. Die bereiding van 'n uitgesoekte reeks offisiële saamgestelde formules van die Britse Farmakopee en die Britse Farmaseutiese Kodeks.

FARMASEUTIKA II

Teorie

1. *Farmaseutiese Prosesse en Beginsels van Vervaardiging.*

Tydens die studie van onderstaande eenheidsprosesse word daar besondere klem gelê op die handhawing van 'n hoë standaard ten opsigte van die kwaliteit en eenvormigheid van produkte van die farmaseutiese vervaardigingsnywerheid:

(i) Ekstraksieprosesse. Beginsels van ekstraksie van artsenymiddels en die toepassing daarvan op grootskaalse metodes. Maserasie, perkolasie, infusie en ander metodes van ekstraksie van ru-artsenymiddels van natuurlike oorsprong.

(ii) Prosesse waarby hitte-oordrag betrokke is. 'n Algemene oorsig van die probleme wat teëgekom word by hittetoevoer en -oordrag by vervaardigingsprosedures:

(a) *Verdamping.*—Basiese teorie en die toepassing daarvan op die ontwerp en bediening van tipiese grootskaalse verdampers.

(b) *Droging.*—Toepaslike beginsels en farmaseutiese oorwegings; 'n studie van die verskillende tipes apparaat algemeen in gebruik, insluitende vriesdroërs.

(c) Distillasie.—Die distillasie van mengbare en onmengbare vloeistofstelsels en die bereiding van Gesuiwerde Water. Destruktiewe distillasie.

(iii) Verkleining van deeltjiegrootte en menging:

(a) Vergruising van soliede materiale en verkleining van druppelgrootte in emulsies.

(b) Menging.

Pharmaceutical chemistry

Course 1:

A. Medicinal Chemistry.
B. Pharmaceutical Analysis.
C. Practical.

Course 11:

D. Medicinal Chemistry.
E. Pharmaceutical Analysis.
F. Practical.

Pharmaceutical Chemistry 1

A. *Medicinal Chemistry*

1. *Inorganic.*—(a) A study of the preparation, reactions and impurities of inorganic pharmaceutical compounds with reference to the action and use of these compounds.

(b) The theory and medical application of radioactive pharmaceutical compounds and formulations.

(c) Röntgenography and contrast-media.

2. *Organic.*—(a) A study of pharmaceutical compounds with particular reference to the synthesis, impurities, physical properties affecting therapeutic activity, toxicity and the relationship between structure and action.

(i) Natural compounds with reference to the formation of synthetic medicinals therefrom, together with elementary aspects of biosynthesis.

(ii) Selected synthetic medicinals and medicinal classes.

(b) The metabolism of selected medicinals and medicinal classes.

B. *Pharmaceutical Analysis*

1. Qualitative reactions and limit tests with a view to the identification and determination of the purity of organic and inorganic pharmaceutical compounds.

2. Application of elementary physical methods to the determination of the identity, purity, quality and therapeutic activity of pharmaceutical compounds and formulations (preparations).

3. Analysis of fats and oils of pharmaceutical importance.

4. Quantitative determination of the components of medicinals.

5. Miscellaneous analytical methods of application to medicinals and their dosage forms.

C. *Practical*

Practical application of all the analytical methods and principles dealth with theoretically in Pharmaceutical Analysis.

Pharmaceutical Chemistry II

D. *Medicinal Chemistry*

A study of the following medicinals and medicinal groups with special reference to the synthesis, impurities, phyisical properties affecting therapeutic activity, toxicity and the relationship between structure and action:

Catecholamines and related compounds.
Quaternary ammonium compounds.
Histamine, antihistamines and phenothiazine derivatives.
Barbiturates, hypnotics and xanthine derivatives.
Anaesthetics.

(c) Skeiding volgens deeltjiegrootte: meting van deeltjie- en druppelgrootte.

(iv) Verheldering van vloeistowwe—filtrasie, sedimentasie, sentrifugering.

(v) Die keuse van materiale vir die oprigting van 'n farmaseutiese aanleg.

2. 'n Studie van galeniese produkte van die B.P. en B.P.C. en ander offisiële saamgestelde formules.

3. 'n Studie van die eienskappe en gebruike van farmaseutiese hulpstowwe in formulering.

4. *Basiese Mikrobiologie.*

(i) Inleiding en geskiedkundige ontwikkeling van die vak.

(ii) Bakteriologie:

(a) Benamingstelsel, klassifikasie, morfologie, voortplanting, identifikasie, isolering van bepaalde tipes, faktore wat die groei van bakterieë beïnvloed.

(b) Die samestelling en gebruik van kweekbodems vir die kweek en ondersoek van bakterieë.

(c) Bakteriële biochemie en kleuringsmetodes.

(d) Bakterietelling.

(e) Verspreiding en voorkoms van bakterieë in die omgewing.

(iii) Skimmels en gisse: klassifikasie en differensiasie, algemene eienskappe, groeivereistes, patogene tipes. Nuttigheid daarvan by die biosintese van antibiotika ens.

(iv) Rickettsiae—algemene eienskappe.

(v) Virusse—klassifikasie, kenmerke en eienskappe, metodes van kweking. Bakteriofage.

(vi) Mutasie en variasie by bakterieë en virusse—gevolge daarvan en ekologiese oorwegings.

Prakties

1. Die reseptering en samestelling van dié doserings vorme en offisiële preparate wat nie gedurende Kursus I afgehandel is nie.

2. *Farmaseutiese Tegnologie.*—(i) Daar word van die student verwag om met die gebruik van die volgende soorte toerusting vir farmaseutiese voorbereidende werk vertroud te raak: Apparaat vir filtrasie, verdamping, distillasie, kondensasie en droging; homogeniseerders, vergruisers; apparaat vir skeiding volgens deeltjiegrootte en vir meting van deeltjies in suspensie en van druppels in emulsies.

(ii) Ondersoek van die fisies-chemiese eienskappe van farmaseutiese hulpstowwe en hul gebruike as middels vir suspensie, dispersie, emulgering, solubilisering, verdikking en jelvorming.

(iii) Die meting en kontrole van pH in farmaseutiese preparate.

(iv) Bepaling van digtheid van vloeistowwe.

3. *Mikrobiologie.*—Toepassing van die teorieleerplan met beklemtoning van die kweking en isolering van verskeie tipes mikroörganismes, biochemiese toetse en kleuringsmetodes, bakterietelling en mikroskopiese studie.

FARMASEUTIKA III

Teorie

1. *Formulering van Medisinale Preparate*

(i) Die algemene benadering van moderne genees middelformulering en keuse van doseringsvorm en toedieningsroete. Farmaseutiese, chemiese, farmakologiese, mikrobiologiese en biofarmaseutiese oorwegings by die ontwerp van formules en keuse van hulpstowwe.

Analgesics including antipyretics.
Corticoids and sex hormones.
Nitrogen mustards and other cytostatics.
Antibiotics.
Sulpnonamides, sulphones and oral hypoglycaemics.
Insulin.
Anticoagulants and Vitamin K.
Rodenticides, insecticides and herbicides.
Vitamins.

E. *Pharmaceutical Analysis*

Application of the following methods to the determination of the identity, purity and quality of pharmaceutical compounds and formulations (preparations):
Spectrometry.
Electrometry.
Potentiometry and polarography.
Chromatography.
Cationic-anionic titrations.
X-ray diffraction.
Complexometry.

F. *Practical*

1. Application of the methods dealth with under E to pharmaceutical dosage forms.
2. Exercise of analytical control over pharmaceutical formulations (preparations).
3. The synthesis, detection of impurities and general reactions of selected examples of pharmaceutical compounds dealt with under D.

PHARMACOGNOSY

Theory

The candidate will be expected to have a knowledge of:

1. The history and development of Phamacognosy.
2. The methods of classification of natural products.
3. The study of natural products with reference to biological and geographical origin, cultivation, collection and preparation for the market, commercial varieties, adulteration, storage, evaluation, constituents and their actions and uses. These aspects should be studied where applicable and as determined by their present pharmaceutical and medicinal importance.
4. Surgical dressings and sutures.
5. The more important indigenous poisonous plants.

Practical

The candidate must be prepared:

1. To examine and describe the macroscopical characters of crude drugs.
2. To examine microscopically crude drugs when presented alone, mixed or contaminated and to report upon them.
3. To screen plants phytochemically and to perform techniques used in natural product analysis.
4. To perfrom official identification tests on natural products and pure substances of natural origin.
5. To examine and report upon materials with respect to the fibres present, and to their distribution.

PHARMACOLOGY

Theory

1. *The scope of Pharmacology.*
2. *Drug transference and pharmacodynamics.*

(a) Drug absorption in the organism and factors influencing drug absorption.

(b) Drug distribution in the organism and factors influencing drug distribution:

(i) Passive transport of drugs.
(ii) Active transport of drugs.

(ii) 'n Studie in besonderhede van die verskillende doseringsvorme in algemene gebruik met beklemtoning van formulering, bereidingsmetodes en standaardisasie by die produksie van medisyne van optimale terapeutiese aktiwiteit, keurigheid, stabiliteit en toedieningsgerief.

(iii) Stabilisasie van farmaseutiese produkte; metodes om besmetting deur mikroörganismes uit te skakel of te beperk; die belang daarvan by verskillende doseringsvorme. Waardebepaling van stabiliteit.

(iv) Die belang van deeltjiegrootte by die formulering van medisinale preparate en die verwerking van geneesmiddels.

(v) Aanbieding en verpakking van farmaseutiese preparate en verpakkingstoetstegnieke.

2. *Toegepaste Farmaseutiese Mikrobiologie*

(i) *Sterilisasiemetodes.*—(a) 'n Kritiese waardering van die verskillende sterilisasiemetodes wat op medisinale preparate, wonddekkings en toerusting, wat in die mediese en farmaseutiese professies gebruik word, van toepassing is.

(b) Steriliteitstoetsing van bogenoemde.

(ii) *Aseptiese Tegniek.*—Die ontwerp en werktoestande van 'n laboratorium vir die bereiding of vervaardiging van steriele produkte wat asepties gehanteer moet word. Bronne van besmetting en die uitskakeling daarvan.

(iii) *Formulering en bereiding van steriele medisinale preparate.*—(a) Parenterale produkte en die toedieningsroetes daarvan. Pirogene. Plasmavervangmiddels en bloedprodukte.

(b) Oogkundige preparate en ander produkte wat in steriele vorm nodig is.

(iv) *Chemiese ontsmetting.*—(a) Die aktiwiteit, werkingswyse, formulering en aanbieding van ontsmettingsmiddels en ander antimikrobiese preparate wat gebruik word vir die ontsmetting van of beperking van mikrobiese groei in kamers en atmosfere, farmaceutiese materiale, apparaat of preparate, of wat aan die vel of slymvliese aangewend word, maar met uitsluiting van ontsmettingsmiddels soos chemoterapeutiese middels wat uitsluitlik vir behandeling van infeksies binne die liggaam gebruik word.

(b) Die waardebepaling van ontsmettingsmiddels.

(v) *Antibiotika.*—Die voorkoms, stabiliteit, produksiemetodes en formulering van 'n uitgesoekte aantal antibiotika wat algemeen in gebruik is en hul standaardisasie deur biologiese metodes waar toepaslik.

(vi) Immunologie.—(a) Algemene belyning van infeksieprosesse en van verdedigingsmeganismes van die liggaam.

(b) 'n Studie in besonderhede van die bereiding, eienskappe en gebruike van verskeie tipes antigeen- en antiliggaamprodukte, insluitende diagnostiese preparate, wat algemeen gebruik word.

3. *Biofarmaseutika*

(i) Farmaseutiese faktore wat die absorpsie van geneesmiddels beïnvloed.

(ii) Benutting van die verspreidingseienskappe van geneesmiddels in die verskillende weefsels van die liggaam en van farmakokinetiese beginsels by die keuse van toedieningsroete, dosis en doseringsvorm van geneesmiddels.

(iii) Benutting van biofarmaseutiese beginsels en parameters by die formulering van doseringsvorme, veral van medisinale produkte wat verlengde uitwerking toon en die waardebepaling daarvan.

(c) Drug metabolism and factors influencing drug metabolism.
(d) Drug excretion and factors influencing drug excretion.

3. *Drug-receptor interactions.*

(a) Interaction of one or more drugs with one receptor system:

(i) Chemical structure and action.
(ii) Dose-response curves.
(iii) Competitive interaction.
(iv) Affinity and intrinsic activity.

(b) Interaction of one or more drugs with different receptor systems:

(i) Non-competitive interactions.
(ii) Chemical antogonism.
(iii) Functional interactions.
(iv) Compounds with multiple actions.
(v) Specific and non-specific drug action.
(vi) The pH and drug action.

(c) The relation between stimulus and effect:

(i) The all-or-none response.
(ii) Threshold phenomena.
(iii) Receptor reserve.

4. *An introduction to drug design.*
5. *Drugs acting on the nervous system.*

(a) Drugs acting on the peripheral nervous system:

(i) The alpha and beta sympathomimetic and the alpha and beta sympatholytic drugs.
(ii) Indirect sympathomimetics and sympatholytics.
(iii) Parasympathomimetic and parasympatholytic drugs.
(iv) Ganlionic stimulant and ganglionic blocking drugs.
(v) Curariform drugs.
(vi) Nonspecific musculotrophic drugs.

(b) Drugs acting on the central nervous system:

(i) Central nervous system stimulants and dopaminergic drugs.
(ii) Central nervous system depressants and dopaminolytic drugs.
(iii) Drugs affecting behaviour.
(iv) Analgesics and antipyretics.
(v) Drugs suppressing the cough centre.

6. *Histaminergic and antihistamine drugs.*

7. *Drugs and allergy.*

8. *Drugs and the treatment of bronchopathy and rhinopathy.*

9. *Local anaesthetics.*

10. *Drugs and the gastro-intestinal tract.*

(i) Drugs acting in the mouth, throat and oesophagus.
(ii) Emetics and anti-emetics.
(iii) Antacids, absorbents and carminatives.
(iv) Laxatives.

11. *Drugs and the cardiovascular system.*

(i) Cardiac glycosides.
(ii) Drugs depressing cardiac muscle.
(iii) Coronary vasodilators.
(iv) Antihypertensive drugs.
(v) Blood cholesterol lowering agents.

12. *Drugs affecting the water and salt balance.*

(i) Acid-base balance and intravenous fluid therapy.
(ii) Diuretics and antidiuretics.
(iii) The ions (Potassium, calcium, magnesium, fluoride, iodite, etc.).

13. *Drugs and the hematopoietic system.*

(i) Drugs effective in anaemias.
(ii) Anticoagulant and coagulant drugs.

Prakties

1. Formulering van farmaseutiese produkte vir maksimale terapeutiese aktiwiteit en stabiliteit en die stabiliteitstoetsing van hierdie produkte.

2. *Toegepaste mikrobiologie.*—(i) Formulering en bereiding van parenterale, oogkundige en ander medisinale preparate in steriele vorm. Aseptiese werkwyses.
(ii) Sterilisaise van medisinale preparate, wonddekkings en farmaseutiese toerusting deur bewese metodes en die waarbepaling van sterilisasiemetodes. Steriliteitstoetsing.
(iii) Waardebepaling van chemiese ontsmettingsmiddels.
(iv) Bereiding van vaksines.

3. *Waardebepaling van geneesmiddels.*—Praktiese toepassing van biofarmaseutiese metodes van waardebepaling van geformuleerde medisinale preparate terwyl van in vitro- en/of in vivo-tegnieke gebruik gemaak word, met spesiale klem op orale eenheidsdoseringsvorme.

Farmasie-administrasie

1. *Administrasie*

1.1 Oorsig van Maatskappyreg en sy invloed op kleinhandelapteekwese, inkomstebelastingwette, Ongevallewet, Winkelure-ordonnansies, Wet op Winkels en Kantore, Werkloosheidversekeringsfonds, kommersiële verspreidingshandel.
1.2 Die tipes kleinhandelbesighede: eenmansaak, vennootskap, private maatskappy, openbare maatskappy, regspersoon.
1.3 Die dryf van 'n besigheid:
1.3.1 Lisensies.
1.3.2 Versekering.
1.3.3 Huurkoopooreenkomste, huur en verhuur: algemene aspekte.
1.3.4 Personeelvoorregte—kledingreëls, verlof, ens.

2. *Bestuur*

2.1 Beginsels van moderne bestuur:
2.1.1 Organisasie: organisasiekaarte, gesagslyne, kommunikasie, verantwoording en verantwoordelikheid, menslike verhoudings.
2.1.2 Beplanning: Doelstellings, begroting.
2.1.3 Leiding.
2.1.4 Beheer.
2.1.5 Personeel en personeelverhoudings.

3. *Finansiële administrasie*

3.1 Basiese boekhouding.
3.2 Die balansstaat—doel en belang.
3.3 Definisies en toepassings.
3.3.1 Leningskapitaal, bedryfskapitaal, aandelekapitaal.
3.3.2 Bates en laste.
3.3.3 Krediteure en debiteure, insluitende debiteurebeheer.
3.3.4 Voorraad, voorraadpeil, voorraadbeheer.
3.4 Handelsrekenings (opstel van handelsrekening, balansstaat, ens.)
3.5 Interpretasie van handelsrekening.
3.5.1 Verkope.
3.5.2 Bruto- en nettowins, ens.
3.6 Begroting.
3.7 Aankope en voorraadbeheersisteem.

4. *Verkryging van 'n apteker sbesigheid*
5. *Bemarking en afsetttegniek in die distribusiehandel met besondere verwysing na kleinhandelapteekwese.*

6. *Die apteker in diens van die publiek*

Algemene oorsig van sy morele en etiese verantwoordelikhede as professionele persoon.

14. *The hormones.*

(i) Horomones of the pituitary gland.
(ii) Estrogens, progestogens and androgens, including oral contraceptives.
(iii) Anabolic steroid.
(iv) Adrenocortical hormones.
(v) Adrenaline.
(vi) Thyroid hormones and antithyroid drugs.
(vii) Insulin and oral antidiabetic drugs.

15. *Vitamins and antivitamins.*
16. *Ensymes and therapeutic substances.*
17. *Immunisation.*
18. *Chemotherapeutic agents.*

(i) Drugs used in bacterial infections.
(ii) Drugs used in fungal infections.
(iii) Drugs used in protozoan infections.
(iv) Drugs used in infections caused by flagellates and flukes.
(v) Drugs used in infections caused by nematodes and cestodes.
(vi) Chemotherapy of cancer.

19. *Gases, vapours and air pollution.*

20. *Insecticides and rodenticides.*

21. *Disinfectants, bactericides and bacteriostatics.*

22. *Weed killers.*

23. Biochemical individuality, pharmacological individuality, pharmacogenetics.

Practical

1. *Drug transference.*

2. *The use of isolated organ systems to demonstrate.*

(a) Competitive antagonism.

(b) Competitive dualism.

(c) Non-competitive antagonism.

3. Determination of affinities and intrinsic activities of various drugs.

4. The effect of various drugs on blood pressure, heart rate and respiration of anaesthetized animals.

5. Quantitative determination of the effects on locomotor activity of test animals of stimulants and depressants of the central nervous system.

6. Capita selecta.

Pharmacy Administration

1. *Administration*

1.1 Review of Company Law and its influence on retail pharmacy, tax laws, Workmen's Compensation Act, shop hours ordinances. Shops and Offices Act, Unemployment Insurance Fund and commercial distributive trade.
1.2 The types of retail businesses: Sole owner, partnership, private company, public company, body corporate.
1.3 Running a business:
1.3.1 Licences.
1.3.2 Insurance.
1.3.3 Hire purchase agreements, and leases and leasing General aspects.
1.3.4 Staff Privileges—dress regulations, leave, etc.

2. *Management*

2.1 Principles of modern management:

2.1.1 Organisation: Organisation charts, lines of authority, communication, accountability and responsibility, human relations.

7. *Die struktuur van apteekwese in Suid-Afrika*

7.1 Amptelike Farmasie—Aptekersvereniging van Suid-Afrika.
7.2 Kleinhandelapteekwese.
7.3 Groothandel- en Industriële Farmasie.
7.4 Inrigtingsapteekwese.
7.5 Akademiese Farmasie.
7.6 Wet op Mediese Skemas.
7.6.1 Kontraktuele reseptering.

FISIKA

Teorie

1. *Meganika*

1.1 Eenhede van lengte, massa, tyd in die volgende stelsels: MKS, CGS en VPS.
1.2 Snelheid, spoed, versnelling en vergelykings van eenvormigversnelde beweging.
1.3 Momentum.
1.4 Bewegingswette van Newton; swaartekrag.
1.5 Krag, massa en gewig.
1.6 Samestelling en ontbinding van kragte.
1.7 Momente, swaartepunt.
1.8 Arbeid en energie: potensiële en kinetiese energie.
1.9 Arbeidsvermoë.

2. *Hidrostatika en eienskappe van materie*

2.1 Soortlike gewig en digtheid.
2.2 Standaardmetodes om soortlike gewig en digtheid te bepaal.
2.3 Kragte en vloeistowwe.
2.4 Atmosferiese druk en barometers.
2.5 Wet van Boyle.
2.6 Kinetiese teorie van gasse.
2.7 Elastisiteit en wet van Hooke.
2.8 Oppervlakspanning en kapillariteit.
2.9 Viskositeit.
2.10 Diffusiewet van Graham.

3. *Warmte*

3.1 Temperatuur en die meting daarvan met behulp van termometers; vaste punte; gradering van termometers; vloeistof-in-glas- en ander termometers.

3.2 Temperatuurskale: Fahrenheit, Celsius, absolute (Kelvin); algemene definise van 'n tempertuurskaal.

3.3 Uitsetting van vaste stowwe, vloeistowwe en gasse; uitsettingskoëffisiënte van vaste stowwe, vloeistowwe en gasse.

3.4 Wet van Charles en die absolute temperatuurskaal.

3.5 Drukkoëffisient van 'n gas; die konstantedrukgastermometer.

3.6 Konstantevolumegastermometer.

3.7 Kalorimetrie.

3.8 Waterekwivalent.

3.9 Soortlike warmte van vaste stowwe en vloeistowwe.

3.10 Verandering van toestand; smelting en verdamping.

3.11 Latente warmtes van smelting van ys en verdamping van stoom.

3.12 Effek van druk op smeltpunt.

3.13 Vriesmengsels.

3.14 Dampdruk; versadigde en onversadigde dampe; kookpunt.

2.1.2 Planning: Objectives, budgeting.
2.1.3 Leading.
2.1.4 Control.
2.1.5 Staff and staff relationships.

3. *Financial Administration*

3.1 Elementary bookeeping.
3.2 The balance sheet—purpose and importance.
3.3 Definitions and applications:
3.3.1 Loan capital, working capital, share capital.
3.3.2 Liabilities and assets.
3.3.3 Creditors and debtors, including debtor control.
3.3.4 Stock, stock levels, stock control.
3.4 Trading statements (drawing up of trading statement, balance sheet, etc).
3.5 Interpretation of trading statement.
3.5.1 Sales.
3.5.2 Gross and net profit, etc.
3.6 Budgeting.
3.7 Buying and stock-control system.

4. *Acquiring a Pharmaceutical Business*

5. *Marketing and Merchandising* in distributive trade with special reference to retail pharmacy.

6. *The Pharmacist as Servant of the Public*

General review of his moral and ethical responsibilities as a professional man.

7. *The Structure of Pharmacy in South Africa*

7.1 Official pharmacy—Pharmaceutical Society of South Africa.
7.2 Retail pharmacy.
7.3 Wholesale and industrial pharmacy.
7.4 Institutional pharmacy.
7.5 Academic pharmacy.
7.6 Medical Schemes Act.
7.6.1 Contractual dispensing.

PHYSICS

Theory

1. *Mechanics*

1.1 Units of length, mass, time in the MKS, CGS and FPS systems.

1.2 Velocity, speed, acceleration and aquations of uniformly accelerated motion.

1.3 Momentum.

1.4 Newton's Laws of Motion; force of gravity.

1.5 Force, mass and weight.

1.6 Composition and resolution of forces.

1.7 Moments, centre of gravity.

1.8 Work and energy; potential and kinetic energy.

1.9 Power.

2. *Hydrostatics and Properties of Matter.*

2.1 Specific gravity and density.
2.2 Standard methods of determining specific gravity and density.
2.3 Forces in fluids.
2.4 Atmospheric pressure and barometers.
2.5 Boyle's Law.
2.6 The Kinetic Theory of Gases.
2.7 Elasticity and Hooke's Law.
2.8 Surface tension and capillarity.
2.9 Viscosity.
2.10 Graham's Law of Diffusion.
3.15 Wet van Dalton vir gedeeltelike drukke.
3.16 Atmosferiese vogtigheid; doupunt; higrometers.
3.17 Stroming, geleiding en straling.
3.18 Meganiese warmte-ekwivalent.

4. *Optika*

4.1 Reglynige voortplanting van lig; teorieë aangaande die aard van lig; skaduwees en verduisterings. Verligting van 'n oppervlak; omgekeerde kwadraatwet.
4.2 Fotometrie; fotometers en ligmeters.
4.3 Ligweerkaatsing.
4.3.1 Wette. Beelde gevorm deur vlakspieëls, deur ewewydige spieëls, deur hellende spieëls.
4.3.2 Weerkaatsing van lig deur sferiese spieëls. Konkawe en konvekse sferiese spieëls; formules wat voorwerpafstand, beeldafstand en brandpuntafstand koppel; tekenreël. Vergroting. Beelde.
4.4 Ligbreking. Wette. Breking by plat oppervlakte. Golfteorie van Huygens. Brekingsindeks. Breking deur vlakke ewewydig aan mekaar, en prismas. Totale weerkaatsing en kritiese hoek.
4.5 Breking deur dun lense. Beeldvorming deur bikonvekse en bikonkawe lense. Standaardformules soortgelyk aan dié vir bostaande sferiese spieëls. Sterkte van 'n lens. Twee dun lense in kontak met mekaar.
4.6 Die oog en optiese instrumente. Beginsels vir die verhelping van oogdefekte met behulp van lense.
4.7 Deviasie en dispersie. Spektra; suiwer, solêr, sommige eenvoudige standaardgasspektra. Spektrometers, Fraunhöferlyne. Chromatiese aberrasie; dispersievermoë; achromatiese prismasamestellings.
4.8 Polarisasie van lig deur die Nicol-prisma, deur weerkaatsing, deur polaroïed. Polarimeters.

5. *Magnetisme*

5.1 Behandeling gebaseer op die MKS-stelsel van eenhede. Eenvoudige eienskappe van magnete; magnetiese velde; magnetiese stowwe; magnetiese induksie.
5.2 Aardmagnetisme.
5.3 Moderne teorie van magnetisme.
5.4 Diamagnetisme, paramagnetisme en ferromagnetisme; die gebiedsteorie van ferromagnetisme.

6. *Elektrostatika*

6.1 Elektrifikasie deur wrywing en induksie.
6.2 Geleiers en isolators.
6.3 Bladgoudelektroskoop.
6.4 Laai deur induksie.
6.5 Verspreiding van lading.
6.6 Elektriese masjiene.

7. *Elektromagnetisme*

7.1 Magnetiese effek van 'n elektriese stroom: ten gevolge van 'n reguit stroomdraende draad, ten gevolge van 'n sirkelspoel wat 'n stroom dra; ten gevolge van 'n solonoïed.

7.2 Elektromagnete; eenvoudige elektriese klokkie.

8. *Stroomelektrisiteit*

8.1 Behandeling gebaseer op die MKS-eenheidstelsel.
8.2 Elektriese groothede, stroomsterkte, elektromotoriese krag, potensiaalverskil, en weerstand. Wet van Ohm.
8.3 Weerstande in serie en parallel.
8.4 Soortlike weerstand.
8.5 Verandering van weerstand met temperatuur.
8.6 Omtakke.
8.7 Selle in serie en parallel geskakel.
8.8 Meting van stroomsterkte, elektromotoriese krag, potensiaalverskille; draaispoelgalvanometer; ampneters; voltmeters; die potensiometer; die Wheatstone-brug.

3. *Heat*

3.1 Temperature and its measurements by thermometers; fixed points; graduation of thermometers; liquid in glass and other thermometers.

3.2 Scales of temperature; Fahrenheit, Celsius, absolute (Kelvin) general definition of a temperature scale.

3.3 Expansion of solids, liquids and gases; coefficients of expansion of solids, liquids and gases.

3.4 Charles' Law and the absolute scale of temperature.

3.5 Pressure coefficient of a gas; the constant pressure gas thermometer.

3.6 Constant volume gas thermometer.

3.7 Calorimetry.

3.8 Water equivalent.

3.9 Specific heats of solids and liquids.

3.10 Change of state; melting and vaporisation.

3.11 Latent heats of fusion of ice and of vaporisation of steam.

3.12 Effect of pressure on melting point.

3.13 Freezing mixtures.

3.14 Vapour pressure; saturated and unsaturated vapours; boiling point.

3.15 Atmospheric humidity; dew point; hygrometers.

3.16 Dalton's Law of Partial Pressures.

3.17 Convection, conduction and radiation.

3.18 Mechanical equivalent of heat.

4. *Optics*

4.1 Rectilinear propagation of light; theories on nature of light; shadows and eclipses. Illumination of a surface; inverse square law.

4.2 Photometry; photometers and light meters.

4.3 Reflection of light:

4.3.1 Laws. Images formed by plane mirrors, by parallel mirrors, by inclined mirrors.

4.3.2 Reflection of light by spherical mirrors. Concave and convex spherical mirrors; formulae connecting object distance, image distance and focal length; sign convention Magnification. Images.

4.4 Refraction of light. Laws. Refraction at plane surfaces. Huygens' wave-theory. Refractive index. Refraction through parallel-sided plates, and prisms. Total reflection and critical angle.

4.5 Refraction through thin lenses. Formation of images by biconvex and biconcave lenses. Standard formulae as for spherical mirrors above. Power of a lens. Two thin lenses in contact.

4.6 The eye and optical instruments. Principles of correction of errors of vision by lenses.

4.7 Deviation and dispersion. Spectra; pure, solar, some simple standard gas spectra. Spectrometers, Fraunhöfer lines. Chromatic aberration; dispersive power; achromatic prism combinations.

4.8 Polarisation of light by Nicol's prism, by reflection, by polaroid. Polarimeters.

5. *Magnetism*

5.1 Treatment based on MKS system of units. Simple properties of magnets; magnetic fields; magnetic substances; magnetic induction.

5.2 Terrestrial magnetism.

5.3 The modern theory of magnetism.

5.4 Diamagnetism, paramagnetism and ferromagnetism; the domsin theory of ferromagnetism.

8.9 Warmte-effekte van 'n elektriese stroom.

8.10 Elektriese eenhede.

8.11 Elektromagnetiese induksie. Wet van Faraday; Wet van Lenz; wedersydse induksie; selfinduksie. Eenvoudige dinamo (wisselstroom en gelykstroom); eenvoudige transformator; eenvoudige gelykstroommotor.

8.12 Chemiese effekte van 'n elektriese stroom. Elektrolise. Teorie van elektroliese dissosiasie. Faraday se wette vir elektrolise. Elektrochemiese ekwivalente. Polarisasie van elektrodes.

8.13. Primêre, sekondêre en konsentrasieselle.

8.14 Elektroniese fisika; geleiding van elektrisiteit deur gasse; katode- en anodestrale; die katodestraalbuis; die fotoëlektriese sel; fluoressensie.

8.15 Radioaktiwiteit; alfa-, beta- en gammastrale.

8.16 X-strale.

Prakties

1. *Algemene fisika*

1.1 Gebruik van die balans.
1.2 Vernier-skuifpasser.
1.3 Skroefmikrometer.
1.4 Digtheid.
1.5 Soortlike gewig.
1.6 Beginsel van Archimedes.
1.7 Fortinbarometer.
1.8 Wet van Boyle.
1.9 Hare se apparaat.
1.10 Enkelvoudige slinger.

2. *Warmte*

2.1 Lineêre uitsetting van metale.
2.2 Kubieke uitsetting van vloeistowwe.
2.3 Barometerkorreksie.
2.4 Termometerkorreksie en vaste punte.
2.5 Soortlike warmte.
2.6 Latente warmte.
2.7 Konstantevolumelugtermometer.

3. *Lig*

3.1 Wette van weerkaatsing en breking.
3.2 Sferiese spieëls.
3.3 Lense.

4. *Elektrisiteit*

4.1 Wet van Ohm.
4.2 Wheatstonebrug.
4.3 Poskantoorbrug.
4.4 Soortlike weerstand.
4.5 Potensiometer; interne weerstand van 'n sel.
4.6 Elektrochemiese ekwivalent van koper.
4.7 Elektriese verwarming.

FISIOLOGIE

Teorie

1. *Mikroskopiese bou van selle en weefsels*

(a) Sitologie van dierlike en menslike selle.

(b) Selfunksies, beheer oor sellulêre prosesse en seldeling, beheer oor proteïensintese, funksies van gene.

(c) Histologie van die weefsels en belangrike organe van die liggaam.

2. *Die funksionele organisering van die liggaam en die beheer oor die inwendige omgewing.*

(a) Organisering van die liggaam in selle, weefsels, organe en sisteme.

(b) Die teorie van reguleringsisteme en homeostase.

3. *Liggaamsvloeistowwe en uitskeiding*

(a) Ekstrasellulêre en intrasellulêre vloeistowwe, membraantransport en osmotiese ewewigte.

(b) Kapillêre dinamika en vloeistofwisseling.

6. *Electrostatics*

6.1 Electrification by friction and induction.
6.2 Conductors and insulators.
6.3 Gold-leaf electroscope.
6.4 Charging by induction.
6.5 Distribution of charge.
6.6 Electrical machines.

7. *Electromagnetism*

7.1 Magnetic effect of an electric current: due to a straight current-carrying wire; due to a circular coil carrying a current; due to a solenoid.

7.2 Electromagnetics; simple electric bell.

8. *Current electricity*

8.1 Treatment based on MKS system of units.

8.2 Quantity of electricity, current, electromotive force, potential difference, and resistance. Ohm's Law.

8.3 Resistances in series and in parallel.

8.4 Resistivity (or specific resistance).

8.5 Variation of resistance with temperature.

8.6 Shunts.

8.7 Cells connected in series and in parallel.

8.8 Measurement of current, electromotive force, potential differences; moving-coil galvanometer; ammeters; voltmeters; the potentiometer; the Wheatstone bridge.

8.9 Heating effects of an electric current.

8.10 Electrical units.

8.11 Electro-magnetic induction. Faraday's Law: Lenz's Law; mutual induction; self-induction, Simple dynamo (A.C. and D.C.); simple transformer; simple D.C. motor.

8.12 Chemical effects of an electric current. Electrolysis. Theory of electrolytic dissociation. Faraday's Laws of electrolysis. Electrochemical equivalents. Polarisation of electrodes.

8.13 Primary, secondary and concentration cells.

8.14 Electronic physics: Conduction of electricity through gases; cathode and anode rays: the cathode ray tube; the photo-electric cell; fluorescence.

8.15 Radio-activity; alpha, beta and gamma rays.
8.16 X-rays.

Practical

1. *General physics*

1.1 Use of the balance.
1.2 Vernier sliding callipers.
1.3 Micrometer screw gauge.
1.4 Density.
1.5 Specific gravity.
1.6 Archimedes' Principle.
1.7 Fortin barometer.
1.8 Boyle's Law.
1.9 Hare's apparatus.
1.10 Simple pendulum.

2. *Heat*

2.1 Linear expansion of metals.
2.2 Cubical expansion of fluids.
2.3 Barometer correction.
2.4 Thermometer correction and fixed points.
2.5 Specific heat.
2.6 Latent heat.
2.7 Constant volume air thermometer.

(c) Die limfvatsisteem, interstisiële vloeistofwisseling en edeem.
(d) Spesiale vloeistofsisteme van die liggaam: serebrospinale vloeistof, okulêre, pleurale en ander.
(e) Vorming van urine deur die niere en uitskeiding van urine, abnormale urinebestanddele.
(f) Beheer oor die samestelling en volume van liggaamstowwe.
(g) Beheer oor die suur-basis-ewewig van die liggaam.

4. *Bloed en immuniteit*

(a) Struktuur, ontwikkeling en lewensgeskiedenis van rooi bloedselle. Anemie en polisitemie.
(b) Liggaamsweerstand teen infeksie: die retikuloendotehiale sisteem, leuksiete, immuniteit, allergie en inflammasie.
(c) Die bloedgroepe, transfusie, weefsel- en orgaanoorplanting, bloedstolling en hemostase.

5. *Die kardiovaskulêre sisteem*

(a) Die hart: Fisiologie van hartspier, eksitasie en geleiding, ritmisiteit, elektrokardiogram, pompwerking van die hart, afwykings van normale funksie.
(b) Bloedsirkulasie, arteriële druk en vloei, hipertensie, kardiale omset, veneuse druk, skok, spesiale sirkulasiegebiede soos koronêre en longsirkulasie.
(c) Beheer oor die hart- en bloedvatfunksies, invloed van oefening.

6. *Respirasie*

(a) Meganiese beginsels van respirasie, longventilasie, kunsmatige asemhaling.
(b) Beginsels van gaswisseling, vervoer van suurstof en koolsuurgas deur die bloed en liggaamsvloeistowwe.
(c) Die beheer oor asemhaling en afwykings van normale respirasiefunksies.
(d) Lugvaart-, ruimtevaart-, diepseeduik- en industriële fisiologie.

7. *Spysvertering en metabolisme*

(a) Bewegings van die spysverteringskanaal, sekresie en beheer daaroor.
(b) Vertering en absorpsie van voedingstowwe.
(c) Metabolisme van koolhidrate, vette en proteïene.
(d) Dieetsamestelling, voeding, beheer oor voeding.
(e) Energiewisseling en -transformering.
(f) Beheer oor liggaamstemperatuur.
(g) Steurings van die spysvertering en metabolisme.

8. *Endokrinologie en reproduksie*

(a) Endokriene regulering, die hipofise, neurosekresies.
(b) Bynierkortekshormone, tiroïedfunksie en timus.
(c) Insulien, glukagon, diabetes mellitus.
(d) Paratiroïedfunksie, kalsiummetabolisme, been- en tandfisiologie.
(e) Voortplanting en die endokriene regulering daarvan.

9. *Die senustelsel en spierfisiologie*

(a) Beginsels van bio-elektrisiteit, membraan- en aksiepotensiale.
(b) Spierfisiologie.
(c) Sinapsfunksies, neurosisteme.
(d) Algemene organisasie van die senustelsel.
(e) Somestetiese sensasies en interpretasie van gewaarwordings deur die senustelsel.
(f) Fisiologiese beginsels van gedagteprosesse en die beheer oor motoriese funksies.
(g) Refleksfisiologie, funksies van die rugmurg, breinstam, basale ganglia en serebellum.
(h) Die outonome senustelsel.
(i) Outomasie, ritmisiteit, outonome balans, slaap en psigosomatiese toestande.
(j) Die sintuie: gesig, gehoor, smaak en reuk.

3. *Light*

3.1 Laws of reflection and refraction.
3.2 Spherical mirrors.
3.3 Lenses.

4. *Electricity*

4.1 Ohm's Law.
4.2 Wheatstone bridge.
4.3 Post office bridge.
4.4 Resistivity.
4.5 Potentiometer; internal resistance of a cell.
4.6 Electrochemical equivalent of copper.
4.7 Electric heating.

PHYSIOLOGY

Theory

1. *Microscopical structure of cells and tissues*

(a) Cytology of animal and human cells.

(b) Cell functions, control of cellular processes and cell fission, control of protein synthesis, functions of genes.

(c) Histology of the tissues and important organs of the body.

2. *The functional organisation of the body and control of the internal environment*

(a) Organisation of the body in cells, tissues, organs and systems.

(b) The theory of regulating systems and homeostasis.

3. *Body fluids and excretion*

(a) Extracellular and intracellular fluids, membrane transport and osmotic equilibria.

(b) Capillary dynamics and fluid exchange.

(c) The lymphatic system, interstitial fluid exchange and oedema.

(d) Special fluid systems of the body: cerebrospinal fluid, ocular fluids, pleural fluid, etc.

(e) Formation of urine by the kidneys and excretion of urine, abnormal urinary constituents.

(f) Control of the composition and volume of body fluids.

(g) Control of the acid-base equilibrium of the body.

4. *Blood and immunity*

(a) Structure, development and life history of red blood cells. Anaemia and polycytaemia.

(b) Resistance of the body against infection—the reticuloendothelial system, leucocytes, immunity, allergy and inflammation.

(c) The blood groups, transfusion, transplant of tissues and organs, coagulation of blood and haemostasis.

5. *The cardiovascular system*

(a) The heart: physiology of cardiac muscle, excitation and conduction, rhythmicity, electrocardiogram, pumping action of the heart, deviations from normal function.

(b) Circulation of blood, arterial pressure and arterial flow, hypertension, cardiac output, venous pressure, shock, special circulation areas such as coronary circulation and pulmonary circulation.

(c) Control of the functions of the heart and vessels, influence of exercise.

Prakties

1. *Histologie*

2. *Hematologie*

(a) Bloedseltellings: rooi bloedselle en wit bloedselle.
(b) Hemoglobienbepalings.
(c) Hematokrietwaarde.
(d) Berekening van indekse.
(e) Bepalings wat verband hou met bloedgroepe, hemolise, breekbaarheid, stolling, besinking.
(f) Biochemiese bepaling van bloedbestanddele.

3. *Kardiale en vaskulêre fisiologie*

(a) Hemodinamika, bloeddruk en hartsnelheid onder verskillende toestande.
(b) Eksperimentele fisiologie van die padda- en/of soogdierhart.

4. *Spier- en senuweefisiologie*

(a) *Skeletspier en/of senuwee.*—Uitwerking van prikkels, summasie, tetanus, temperatuur, belading, vermoeienis, snelheid van impulsgeleiding, reflekse.
(b) Kontraksie van gladde spier.

5. *Urine-ontledings*

Normale en abnormale urinebestanddele.

6. *Spysvertering en metabolisme*

Ensienbepalings, capita selecta.

Geregtelike Farmasie

Kandidate se kennis sal getoets word met betrekking tot die volgende wetgewing vir sover dit betrekking op die praktyk van apteekwese het.

1. Wet op Geneeshere, Tandartse en Aptekers (No. 13 van 1928), soos gewysig, veral met betrekking tot die volgende:
Hoofstuk I: Artikels 2, 3, 8 en 9.
Hoofstuk II: Artikels 14 tot en met 18, 24, 24A, 27A en 33.
Hoofstuk III: Artikel 37.
Hoofstuk IV: Die hele Hoofstuk, uitgesonderd artikel 44.
Hoofstuk V: Die hele Hoofstuk.
Hoofstuk VI: Die hele Hoofstuk.
Hoofstuk VII: Artikels 73, 75, 76, 76 *bis*, 77 tot en met 82 uitgesonderd artikel 80 *bis*, 84, 87 tot en met 90, 95 en 96.
Die Tweede, Vierde, Vyfde en Sesde Bylaes.
Kanidate moet ook kennis hê van die Engelse en Afrikaanse name van vergifte wat in die Vierde en Vyfde Bylaes voorkom, en van die giftige stowwe wat in artikel 82 genoem word.
Regulasies kragtens die Wet op Geneeshere, Tandartse en Aptekers uitgevaardig.
Regulasies uitgevaardig vir die uitvoering van voorwaardes van Hoofstukke 5 en 6 en in die besonder:

(a) Regulasies betreffende die invoer, verkoop en gebruik van opium en ander gewoontevormende medisyne, insluitende Aanhangsel A.
(b) Erkende formuleboeke.
(c) Etikettering van moontlike nadelige medisyne.
(d) Lys van giftige stowwe.
(e) Uitreiking van sekere vergifte namens die Regering.
(f) Etikettering en verkoop van vergifte, insluitende lyste A, B, C, en D.
(g) Preparate vrygestel van die bepalings van Hoofstuk 4. Reëls uitgevaardig kragtens die Wet op Geneeshere, Tandartse en Aptekers en in die besonder:

(a) Reëls in verband met gedrag waarvan die Kommissie kennis kan neem.

6. *Respiration*

(a) Mechanical principles of respiration, pulmonary ventilation, artificial respiration.
(b) Principles of gaseous exchange, transport of oxygen and carbon dioxide by the blood and body fluids.
(c) Control of respiration and deviations from normal respiration.
(d) Physiology of aviation, space travel and deep-sea diving and industrial physiology.

7. *Digestion and metabolism*

(a) Movements of the gastro-intestinal tract, secretion and control thereof.
(b) Digestion and absorption of nutrients.
(c) Metabolism of carbohydrates, fats and proteins.
(d) Composition of diet, nutrition and its control.
(e) Exchange and transformation of energy.
(f) Control of body temperature.
(g) Disorders of digestion and of metabolism.

8. *Endocrinology and reproduction*

(a) Endocrine regulation, the pituitary gland, neurosecretions.
(b) Hormones of the adrenal cortex, functions of thyroid and thymus.
(c) Insulin, glucagon, diabetes mellitus.
(d) Function of parathyroids, calcium metabolism, physiology of bone and teeth.
(e) Reproduction and its endocrine control.

9. *The nervous system and physiology of muscle*

(a) Principles of bio-electricity, membrane and action potentials.
(b) Physiology of muscle.
(c) Functions of synapses, neurosystems.
(d) General organization of the nervous system.
(e) Somesthetic sensations and interpretation of perceptions by the nervous system.
(f) Physiological principles of mind processes and the control of motor functions.
(g) Physiology of reflexes, functions of spinal cord, brainstem, basal ganglia and cerebellum.
(h) The autonomic nervous system.
(i) Automation, rhythmicity, autonomic balance, sleep and psychosomatic conditions.
(j) The senses: vision, hearing, taste and smell.

Practical

1. *Histology*

2. *Haematology*

(a) Blood cell counts: red blood cells and white blood cells.
(b) Haemoglobin determinations.
(c) Haematocrit value.
(d) Calculation of indices.
(e) Determinations related to blood groups, haemolysis, fragility, coagulation, sedimentation.
(f) Biochemical determination of constituents of blood.

3. *Cardiac and vascular physiology*

(a) Haemodynamics, blood pressure and heart rate under various conditions.
(b) Experimental physiology of the heart of the frog and/or mammalian heart.

4. *Physiology of muscle and nerves*

(a) *Skeletal muscle and/or nerve tetanus.*—Effects of stimuli, summation, temperature, loading, fatigue, conduction, velocity of impulses, reflexes, tetanus.
(b) Contraction of smooth muscle.

(b) Registrasie van ongekwalifiseerde assistente.

(c) Verskaffing van inligting aan die Registrateur in verband met apteke waarby 'n geregistreerde apteker betrokke is.

(d) Betaling van jaargelde.

Regulasies betreffende Terapeutiese Stowwe: Vir sover dit betrekking op die praktyk van apteekwese het, en in die besonder:

Deel I: Regulasies 1 tot en met 4 *bis*.
Deel II: Regulasie 5.
Deel III: Regulasies 20, 21 en 22.
Deel IV: Regulasies 68 tot en met 89 *bis*.
Deel VIII: Regulasies 90 tot en met 92.
Deel X: Regulasies 94 tot en met 96.
Algemene kennis van items wat onder die bepalings van die Bylaes val.

2. Die Drankwet en regulasies: Artikels 5, 130, 131, 140 en 175 en regulasies met betrekking tot artikels 130 en 131.

3. Volksgezondheidswet: Vir sover dit betrekking op die praktyk van die Apteekwese het en in die besonder artikels 65 en 139.

4. Die Wet op Voedingsmiddels, Medisyne en Ontsmettingsmiddels: Vir sover dit betrekking op die praktyk van die Apteekwese het.

5. Wet op Misstowwe, Veevoedsel en Middels en regulasies: Vir sover dit betrekking op die praktyk van die Apteekwese het.

6. Wet op die Beheer van Medisyne en regulasies: Vir sover dit betrekking op die praktyk van die Apteekwese het en in die besonder artikels 1, 2, 14, 18, 19, 20, 28 en 32.

Regulasies 1, 2, 3, 6 en 10.

Opmerking.—Bogenoemde kennis is van toepassing op enige wysigings van die bepaalde artikels of bylaes en op enige reëls of regulasies wat daarop betrekking het of wysigings daarvan wat voor of op 30 April van die lopende jaar gepubliseer word.

Gesondheidsvoorligting

Doel.—Om die apteker voor te berei en van die basiese agtergrondkennis te voorsien om, in die beoefening en binne die omvang van sy beroep aan die publiek inligting en voorligting te verstrek ten opsigte van belangrike aangeleenthede op die gebied van die openbare gesondheid.

AFDELING I

Studie van die Gemeenskap

(A) Sosiologiese agtergrond.

(B) Bepaalde omstandighede in die gemeenskap wat gesondheidsvoorligting vereis:

(a) Inleiding:

(i) Basiese fisiologiese prosesse en die verband tussen hulle en siekte.

(ii) Gesondheidsvoorligting as faktor in die voorkoming van siekte.

(iii) Basiese funksies van die gesondheidsvoorligter.

(iv) Vorming van gewoontes; rol van aansporingsbonus.

(b) Die huisgesin.

(c) Die algemene gemeenskap.

5. *Urine analysis*

Normal and abnormal urinary constituents.

6. *Digestion and metabolism.*

Determination of enzymes, capita selecta.

ZOOLOGY

A. Theory

1. Small mammal (e.g. rat, rabbit, guinea pig or cat) —external features, skin and derivatives. Digestive symtem—main parts of the alimentary canal and its derivatives.

Enzymes and hormones—an outline of their functions in digestion.

Peristalsis.

Mouth—muous, ptyalin.

Stomach—pepsin, HCl, rennin.

Pancreas—trypsinogen, steapsin, amylopsin. Small intestine—erepsin, enterokinase, lipase. Liver—bile pigments and salts.

Rectum—absorption of water, ejection of undigested food, excretion from vascular supply of walls.

Vascular system—heart, principal blood vessels.

Nature of arteries, veins, portal veins, capillaries. Functions of blood transport, protection (phagocytosis, clotting, agglutination). Maintenance of constant temperature. Respiratory system.

Nervous sytem—spinal cord and nerves: Brain and cranial nerves.

Sympathetic system—reflex arc. Function of parts in general.

Skeletal system—vertebral column, skull, appendicular skeleton.

Name of bones—functions—attachment of muscles, support, protection.

Urogenital system—kidney, gonads, ducts and associated glands.

Placenta.

Endocrine system—principal glands and their functions in general.

2. Microscopic anatomy of mammal—structure and physiology.

Animal cells—structure and multiplication. Mitosis.

Meiosis.

Epithelial tissue—trachea, oesophagus, stomach, intestine, skin, liver, pancreas, kidney.

Connective tissue—loose, dense (elastic, collagenous and reticular); adipose, pigment, lymph and lung, tissue, bone, cartilage and blood (including clotting).

Muscular tissue—striated, cardiac and smooth.

Nervous tissue—ganglia and synapses, neuroglia.

Sensory organs and tissues—taste buds, and bulks, Paccinian corpuscles, and plates, muscle spindles, free nerve endings, olfactory epithelium, eye, ear.

Sex organs—testis, ovary, gametogenesis, sex determination.

3. Outline of classification—basic principles of classification; aggregation of animals into species, genera, families, classes, phyla.

4. General study of the following invertebrates:

Protozoa—*Amoeba, Entamoeba, Trichomonas, Trypanosoma, Plasmodium.*

Babesia.

Platyhelminthes—*Schistosoma, Fasciola, Taenia, Echinococcus.*

AFDELING II

Beginsels van Gesondheidsopvoeding en Onderrig

(a) Die aard en betekenis van gesondheidsopvoeding.

(b) Hedendaagse doelstellings van onderrig en die verband tussen hulle en gesondheidsopvoeding.

(c) Die leerproses; verskillende leervorme; faktore wat die leerproses beïnvloed.

(d) Algemene beginsels van onderrig; toepassing van onderrigmetodes by gesondheidsopvoeding.

(e) Beginsels van kommunikasie; toepassing van onderrigmetodes by gesondheidsvoorligting.

(f) Tegnieke van gesondheidsvoorligting.

(g) Bronne van inligtingsmateriaal betreffende gesondheidsopvoeding.

AFDELING III

Gesondheidsprobleme van Belang in Suid-Afrika

(a) Omgewingsfaktore.

(b) Gesondheidsaspekte van water.

(c) Persoonlike higiëne en fiksheid.

(d) Moederkunde, babasorg en -opvoeding, gesinsbeplanning.

(e) Gesondheidsaspekte van voedsel en voeding.

(f) Faktore wat siekte teweegbring.

(g) Verspreiding en voorkoming van aansteeklike en ander oordraagbare siektes.

(h) Epidemiese en ander siektes wat aangegee moet word.

(i) Algemene kindersiektes.

(j) Ander algemene siektes van belang.

(k) Insekte en insektebestryding.

(l) Geestelike welsyn en gevare van misbruik van medisyne en veral van dwelmmiddels, misbruik van alkohol en van tabak.

(m) Voorkoming van vergiftiging.

(n) Die apteker as lid van 'n gesondheidspan.

(o) Tersaaklike aspekte van gesondheidswetgewing.

PLANTKUNDE

A. Teorie

Biologie, die betekenis en omvang en die twee groot onderafdelings daarvan, naamlik plantkunde en dierkunde; die waarde daarvan as kulturele en farmaseutiese vak; die betekenis en omvang van die belangrikste onderafdelings van biologie; taksonomie, morfologie, anatomie, fisiologie, genetika, evolusie.

Die planteryk en die hoofonderafdelings daarvan met hul kenmerke; bakterieë, alge, swamme, korsmosse, briofiete, pteridofiete, gimnosperme en angiosperme as voorbeelde van die verskeidenheid van plantlewevorms en van evolusionêre geskiedenis en neigings.

Die plant as lewende organisme; vorm en funksie van die wortels, stingel, blare, vrugte van 'n tipiese groen kruidagtige landplant en van 'n houtagtige meerjarige plant wat sekondêre diktegroei vertoon. Die invloed van die habitat (grond en lug) op plantorgane. Die aard van die modifikasies van organe vir spesiale funksies. Die sel en seldeling. Die weefsels van tipiese angiosperms—kortliks hul bou, rangskikking en funksies. 'n Tipiese blom—bou en die funksies van die verskillende dele; die bou van die vrug en saad, verspreiding en ontkieming van saad.

Beginsels van plantfisiologie—waterverhoudings, fotosintese, voeding, groei, respirasie, vertering, tropismes met betrekking tot swaartekrag, lig, water, opberging van reserwes. Parasitisme, saprofitisme, epifitisme.

Nemathelminthes—*Trichocephalus (Trichuris), Strongyloides,* hookworm, *Enterobius, Ascaris.*

Arthropoda—crayfish or cockroach or locust (general morphology).

Bug, mosquito, flea, tsetse fly, housefly, louse and beetle (external structure, mouth parts and life history only).

Arachnida—Ticks and mites (the external structure, life history and hosts).

5. Parasitism.

6. Heredity—Mendelian heredity as illustrated by the inheritance of simple and sex-linked characters.

7. Embryology of the frog.

B. Practical

The complete dissection of the systems (other than muscular) of a small mammal, crayfish or cockroach or locust.

Identification of the bones of the skeleton, and of slides showing the macroscopic structure of animals or parts of animals mentioned in the theory syllabus."

'n Kort vergelykende studie van die vorm, bou, lewensgekiedenis en voortplanting van *Bacillus subtilis,* Tabakmosaïekvirus, *Chlamydomonas, Spirboyra,* Diatome, *Fucus, Rhizopus nigricans, Saccharomyces, Claviceps, Penicillium, Agaricus (psalliota), Funaria, Dryopteris, Pinus,* 'n tipiese monokotiel, 'n tipiese dikotiel. Beginsels van taksonomie soos geïllustreer deur 'n kort studie van 'n verteenwoordigende voorbeeld van elk van die volgende families: Liliaceae, Gramineae, Ranunculaceae, Leguminosae, Solanaceae, Compositae, Labiatae, Scrophulariaceae.

B. Praktiese

Die ondersoek, disseksie, makroskopiese en mikroskopiese ondersoek, beskrywing en teken van plantmateriaal uit bostaande lys verkry; demonstrasies van ekologiese en fisiologiese kenmerke moet gereël word. Die eksamen moet veral die bepaling van die waarnemingsvermoë van die kandidaat beoog, asook sy vermoë om wat hy gesien het noukeurig te beskryf en getrou te teken, en sy vermoë om plantkundige verskynsels te interpreteer."

DEPARTMENT OF RAILWAYS, HARBOURS AND AIRWAYS

No. R. 746 7 May 1971

DEPARTMENT OF THE SOUTH AFRICAN RAILWAYS AND HARBOURS.—AMENDMENT OF THE GENERAL RAILWAY REGULATIONS

The State President has been pleased, in terms of section 3 of the Railways and Harbours Control and Management (Consolidation) Act, 1957 (Act 70 of 1957), to approve of the following amendments to the General Railway Regulations published under Government Notice R. 1560 in *Regulation Gazette* 239 of 11 October 1963, with effect from 1 April 1971:

Definitions

Regulation 1

"combustible liquid": Delete "(73° F)", "(150° F)", "(120° F)" "(120° F)", "(150° F)" and "(100° F)" in the second, fourth, fifth and seventh lines respectively and substitute "1 Bar" for "16 lb. per square inch" in the seventh line.

"compressed gas": Delete "(60° F)" and "(100° F)" in the fourth and sixth lines and substitute "1·7 Bar" and "2·7 Bar" for "25 lb. per square inch" and "40 lb. per square inch" in the third and fifth lines, respectively.

"liquefiable gas": Delete "(32° F)" and "(86° F)" in the second and last lines.

"flammable liquid": Delete "(73° F)" and "(100° F)" in the second and last lines and substitute "1 Bar" for "16 lb. per square inch" in the fifth line.

"pressure forming liquid": Substitute "1 Bar" and "2·7 Bar" for "16 lb. per square inch" and "40 lb. per square inch" respectively. Delete "(100° F)" in the last line.

"ton": Substitute "shall mean a mass of 1 000 kilograms" for "shall mean a weight of 2 000 pounds".

"vapour pressure": Delete "(100° F)".

Regulation 5 (a)

Substitute "kilometre" for "mile" in the second line.

Regulation 12 (a) *and* (b)

Substitute "40 kilometres" (four times) for "25 miles".

DEPARTEMENT VAN SPOORWEË, HAWENS EN LUGDIENS

No. R. 746 7 Mei 1971

DEPARTEMENT VAN DIE SUID-AFRIKAANSE SPOORWEË EN HAWENS.—WYSIGING IN DIE ALGEMENE SPOORWEGREGULASIES

Dit het die Staatspresident behaag om kragtens artikel 3 van die Konsolidasiewet op die Beheer en Bestuur van Spoorweë en Hawens, 1957 (Wet 70 van 1957), goedkeuring te verleen aan die volgende wysigings van die Algemene Spoorwegregulasies afgekondig by Goewermentskennisgewing R. 1560 in *Regulasiekoerant* 239 van 11 Oktober 1963, met ingang van 1 April 1971:

Woordbepalings

Regulasie 1

"brandbare vloeistof": Skrap "(73° F)", "(150° F)", "(120° F)", "(120° F)", "(150° F)" en "(100° F)" in die tweede, vierde, vyfde, sesde en agste reëls onderskeidelik en vervang "16 lb. per vierkantduim" deur "1 bar" in die sewende reël.

"dampdruk": Skrap "(100° F)".

"drukvormende vloeistof": Skrap "(100° F)" in die vierde reël en vervang "16 lb. maar hoogstens 40 lb. per vierkantduim" in die derde reël deur "1 bar maar hoogstens 2·7 bar".

"saamgeperste gas": Skrap "(60° F)" en "(100° F)" in die derde en sesde reëls en vervang "25 lb. per vierkantduim" en "40 lb. per vierkantduim" deur onderskeidelik "1 bar" en "2·7 bar" in die vierde en sesde reëls.

"vervloeibare gas": Skrap "(32° F)" en "(86° F)" in die tweede en derde reëls.

"vlambare vloeistof": Skrap "(73° F)" en "(100° F)" in die tweede en vyfde reëls en vervang "16 lb. per vierkantduim" deur "1 bar" in die vyfde reël.

"ton": Vervang "'n gewig van 2,000 pond" deur "'n massa van 1 000 kilogram".

Regulasie 5 (a)

Vervang "myl" in die derde reël deur "kilometer".

Regulasie 12 (a) en (b)

Vervang "25 myl" (vier keer) deur "40 kilometer".

Regulation 12 (e)

Substitute "27 kilometres", "21 kilometres" and "48 kilometres" for "17 miles", "13 miles" and "30 miles" respectively.

Regulation 13

Substitute "40 kilometres" for "25 miles" in the third line.

Regulation 14 (b)

Substitute "upon payment of the full single fare at the ordinary scale of fares for the extra distance, if the distance to" for "upon payment of the full single fare at the ordinary mileage scale of fares for the extra mileage if the distance to" in the 10th and 11th lines.

Regulation 14 (c)

Substitute "single rail fare at the ordinary scale of fares for the extra rail distance (computed on the basis of the combined rail distances, if applicable), if the distance to be" for "single rail fare at the ordinary mileage scale of fares for the extra rail mileage (computed on the basis of the combined rail mileages, if applicable), if the distance to be" in the 12th, 13th and 14th lines.

Regulation 14 (d)

Substitute "full single rail fare for the extra rail distance (computed on the basis of combined rail distances, if applicable) if" for "full single rail fare for the extra rail mileage (computed on the basis of combined rail mileages, if applicable) if" in the 12th and 13th lines and "journey" for "mileage" in the 19th line.

Regulation 16 (a)

Substitute "300 kilometres" for "200 miles" in the eighth line.

Regulation 16 (b) (1)

Substitute "300 kilometres" for "200 miles" in the ninth line.

Regulation 20

Substitute "40 kilometres" for "25 miles" in the third line.

Regulation 35 (e)

Substitute "mass" for "weight" in the second line.

Regulation 38 (a)

Substitute "125 kilograms in mass" for "250 lb. in weight" in the last line.

Regulation 39 (a)

Substitute "50 kilograms", "35 kilograms" and "25 kilograms" (twice) for "100 lb.", "75 lb." and "50 lb." (twice) respectively; "this mass" for "these weights" in the last line and "Mass" for "Weight" in the margin.

Regulation 39 (b)

Substitute "mass" for "weights" in the first line.

Regulation 57 (a) (1)

Substitute "with a mass exceeding 125 kilograms" for "weighing more than 250 lb.".

Regulation 59 (e)

Substitute "10 kilometres" (twice) and "16 kilometres" (twice) for "six miles" and "10 miles", respectively.

Regulation 70

Substitute "ten kilograms in mass" for "twenty-five pounds in weight".

Regulation 74

Substitute "mass" for "weight" in the third line.

Regulasie 12 (e)

Vervang "17 myl", "13 myl" en "30 myl" onderskeidelik deur "27 kilometer", "21 kilometer" en "48 kilometer".

Regulasie 13

Vervang "25 myl" deur "40 kilometer" in die derde reël.

Regulasie 14 (b)

Vervang "mylskaalpryse vir die ekstra mylafstand" in die dertiende reël deur "afstandskaalpryse vir die ekstra afstand".

Regulasie 14 (c)

Vervang "mylskaalpryse vir die ekstra spoormylafstand (bereken op die gesamentlike spoormylafstand indien van toepassing)" in die 14de, 15de en 16de reëls deur "afstandskaalpryse vir die ekstra spoorafstand (bereken op die gesamentlike spoorafstand indien van toepassing)".

Regulasie 14 (d)

Vervang "spoormylafstand betaal (bereken op die gesamentlike spoormylafstand indien van toepassing), en as die totale spoormylafstand" in die 14de, 15de en 16de reëls en "mylafstand" in die 18de reël deur onderskeidelik "spoorafstand betaal (bereken op die gesamentlike spoorafstand indien van toepassing), en as die totale spoorafstand" en "afstand".

Regulasie 16 (a)

Vervang "200 myl" in die sesde reël deur "300 kilometer".

Regulasie 16 (b) (1)

Vervang "200 myl" in die 10de reël deur "300 kilometer".

Regulasie 20

Vervang "25 myl" in die derde reël deur "40 kilometer".

Regulasie 35 (e)

Vervang "oorgewig" deur "oormassa" in die tweede reël.

Regulasie 38 (a)

Vervang "250 lb." in die laaste reël deur "125 kilogram".

Regulasie 39 (a)

Vervang "100 lb.", "75 lb." en "50 lb." (twee keer) onderskeidelik deur "50 kilogram", "35 kilogram" en "25 kilogram" (twee keer) en "gewigte" in die derde paragraaf deur "massas".

Regulasie 39 (b)

Vervang "gewigte" in die eerste reël deur "massas".

Regulasie 57 (a) (i)

Vervang "250 lb." deur "125 kilogram".

Regulasie 59 (e)

Vervang "ses myl" deur "10 kilometer" (twee keer) en "tien myl" deur "16 kilometer" (twee keer).

Regulasie 70

Vervang "'n gewig van vyf-en-twintig pond" deur "'n massa van 10 kilogram".

Regulasie 74

Vervang "gewig" deur "massa" in die derde reël.

Regulation 77 (f) (1)

Substitute "110 centimetres by 85 centimetres", "75 centimetres", "50 centimetres", "464 square centimetres" and "·093M²" for "3 feet 6 inches by 2 feet 9 inches", "30 inches", "20 inches", "half a square foot" and "one square foot", respectively in the first, second, third, fifth, eighth and ninth lines.

Regulation 77 (f) (2)

Substitute "13 centimetres" for "5 inches" in the third line.

Regulation 86

Substitute "mass" for "weight" in the third line.

Regulation 95

Substitute "mass" for "weight" in the fourth line.

Regulation 101 (b)

Substitute "mass" for "weight" in the third line.

Regulation 104 (b)

Substitute "mass" for "weights" in the third line.

Regulation 105

Substitute "mass" for "weight" in the second line.

Regulation 111 (a)

Substitute "mass" for "weight" in the fifth line.

Regulation 111 (b)

Substitute "thirteen point seven metres" for "forty-five feet".

Regulation 114 (b)

Substitute "1 500 kilograms in mass" for "3,000 lb. in weight" in the third and fourth lines.

Regulation 120 (c)

Substitute "mass" for "weight" in the third line.

Regulation 120 (e)

Substitute "500 kilograms" and "125 kilograms" for "1,000 lb." and "250 lb.", respectively, in the first and second lines.

Regulation 124 (a)

Substitute "1 000 kilograms" for "2,000 lb." in the third line.

Regulation 127 (c)

Substitute "1 500 kilograms in mass" for "3,000 lb. in weight" in the fifth and sixth lines and the second line of the exception.

Regulation 128 (a)

Substitute "1 500 kilograms in mass" for "3,000 lb. in weight" in the second line.

Regulation 136 (a)

Substitute "3 kilometres", "10 kilometres", "16 kilometres", "50 kilometres" and "80 kilometres" for "2 miles", "6 miles", "10 miles", "30 miles" and "50 miles", respectively.

Regulation 146

Substitute "mass" for "weight" in the seventh line.

Regulation 171

Substitute "mass" for "weights" in the third line.

Regulation 189 (a)

Substitute "mass" for "weights" in the seventh line.

Regulation 190

Substitute "2·75 metres" for "9 feet" in the fourth line.

Regulasie 77 (f) (1)

Vervang "3 voet 6 duim by 2 voet 9 duim", "30 duim", "20 duim", "halwe vierkantvoet" en "vierkant voet" in die tweede, derde, vierde, agste en negende reëls deur "110 sentimeter by 85 sentimeter", "75 sentimeter", "50 sentimeter", "464 vierkante sentimeter" en "·093M²" onderskeidelik.

Regulasie 77 (f) (2)

Vervang "5 duim" deur "13 sentimeter".

Regulasie 86

Vervang "gewig" (twee keer) in die vierde reël deur "massa".

Regulasie 95

Vervang "gewig" deur "massa" in die vierde reël.

Regulasie 101 (b)

Vervang "gewig" deur "massa" in die vierde reël.

Regulasie 104 (b)

Vervang "gewigte" deur "massas" in die laaste reël.

Regulasie 105

Vervang "gewig" deur "massa" in die tweede reël.

Regulasie 111 (a)

Vervang "gewig" deur "massa" in die voorlaaste reël.

Regulasie 111 (b)

Vervang "vyf-en-veertig voet" in die vyfde reël deur "dertien punt sewe meter".

Regulasie 114 (b)

Vervang "3,000 lb." in die derde reël deur "1 500 kilogram".

Regulasie 120 (c)

Vervang "gewig" deur "massa" in die eerste reël.

Regulasie 120 (e)

Vervang "1,000 lb." en "250 lb." in die eerste en tweede reëls deur "500 kilogram" en "125 kilogram" onderskeidelik.

Regulasie 124 (a)

Vervang "2,000 lb." in die derde reël deur "1 000 kilogram".

Regulasie 127 (c)

Vervang "3,000 lb." in die sesde reël deur "1 500 kilogram" sowel as in die tweede reël van die uitsondering.

Regulasie 128 (a)

Vervang "3,000 lb." deur "1 500 kilogram" in die eerste reël.

Regulasie 136 (a)

Vervang "2 myl", "6 myl", "10 myl", "30 myl" en "50 myl" deur "3 kilometer", "10 kilometer", "15 kilometer", "50 kilometer" en "80 kilometer" onderskeidelik.

Regulasie 146

Vervang "gewig" deur "massa" in die 17de reël.

Regulasie 171

Vervang "gewigte" deur "massas" in die voorlaaste reël.

Regulasie 189 (a)

Vervang "gewigte" deur "massas" in die voorlaaste reël.

Regulasie 190

Vervang "9 voet" deur "2·75 meter" in die laaste reël.

Regulation 226

Substitute "2 000 kilograms" for "3,000 lb." in the second line and "mass" for "weight" in the margin.

Regulation 230

Substitute "500 grams" for "one pound" in the sixth line.

Regulation 231

Substitute "mass" for "weight" in the first, sixth, seventh, eighth and last lines and "Mass" for "Weight" in the margin.

Regulation 232

Substitute "mass" for "weight" in the second line.

Regulation 233

Substitute "mass" for "weight" in the fourth line.

Regulation 235

Substitute "mass" for "weight" in the sixth (twice), seventh and 18th lines.

Regulation 236

Substitute "mass" for "weight" in the second line and margin.

Regulation 249 (a)

Substitute "22c per 100 kilograms" for "10c per 100 lb." in the first line.

Regulation 249 (b)

Substitute "100 kilograms in mass" for "100 lb. in weight" in the eighth line and "mass" and "100 kilograms" for "weight" and "100 lb." in the 15th and 17th lines respectively.

Regulation 255 (b)

Substitute "250 metres" for "250 yards" in the ninth line.

Regulasie 226

Vervang "3,000 lb." in die tweede reël deur "1 500 kilogram".

Regulasie 230

Vervang "een pond" in die vyfde en sesde reëls deur "500 gram".

Regulasie 231

Vervang "gewig" deur "massa" in die eerste, vyfde, sewende (twee keer) en twaalfde reëls en "Gewigte" in die kantlyn deur "Massas".

Regulasie 232.

Vervang "gewig" deur "massa" in die tweede reël.

Regulasie 233

Vervang "gewig" deur "massa" in die vierde reël.

Regulasie 235

Vervang "gewig" deur "massa" in die vyfde, sesde en 17de reëls.

Regulasie 236

Vervang "gewig" deur "massa" in die tweede en vierde reëls en "Gewig" deur "Massa" in die kantlyn.

Regulasie 249 (a)

Vervang "10c per 100 lb." in die eerste reël deur "22c per 100 kilogram".

Regulasie 249 (b)

Vervang "100 lb." in die agste reël deur "100 kilogram" en "gewig" en "100 lb." deur "massa" en "100 kilogram" onderskeidelik in die 15de en 17de reëls.

Regulasie 255 (b)

Vervang "250 jaarts" in die negende reël deur "250 meter".

DEPARTMENT OF CUSTOMS AND EXCISE

No. R. 776 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 1 (No. 1/1/61)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 48 of the Customs and Excise Act, 1964, hereby amend Schedule 1 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

DEPARTEMENT VAN DOEANE EN AKSYNS

No. R. 776 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 1 (No. 1/1/61)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 48 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 1 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I	II	III	IV	V
Tariff Heading	Statistical Unit	Rate of Duty		
		General	M.F.N.	Preferential
29.35 By the deletion of subheading No. 29.35.75.				

NOTE.—The effect of this notice is to delete the specific provision for ethoxyquin (also known as 6-ethoxy 2,2,4-trimethyl 1,2 dihydroquinoline).

BYLAE

I	II	III	IV	V
Tariefpos	Statistiese Eenheid	Skaal van Reg		
		Algemeen	M.B.N.	Voorkeur
29.35 Deur subpos No. 29.35.75 te skrap.				

OPMERKING.—Die uitwerking van hierdie kennisgewing is om die spesifieke voorsiening vir etoksikin (ook as 6-etoksi 2,2,4-trimitiel 1,2 dihidrokinolien bekend) te skrap.

No. R. 778 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 1 (No. 1/1/63)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 48 of the Customs and Excise Act, 1964, hereby amend Schedule 1 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 778 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 1 (No. 1/1/63)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 48 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 1 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I Tariff Heading		II Statistical Unit	III Rate of Duty	IV	V
			General	M.F.N.	Preferential
85.18	By the substitution in subheading No. 85.18.10 for the rate of duty in Columns III and V of the following:		"5%		free (U.K.)"

NOTE.—The duty on electrical capacitors of a kind used solely or principally with radio, radar, television, radiotelegraphic and radiotelephonic apparatus, is decreased from 12½% (General) and 7½% (Preferential) to 5% (General) and free (Preferential).

BYLAE

I Tariefpos		II Statistiese Eenheid	III Skaal van Reg	IV	V
			Algemeen	M.B.N.	Voorkeur
85.18	Deur in subpos No. 85.18.10 die skaal van reg in Kolomme III en V deur die volgende te vervang:		"5%		vry (V.K.)"

OPMERKING.—Die reg op elektriese kapasitors van 'n soort slegs of hoofsaaklik met radio-, radar-, televisie-, radiotelegrafiese en -telefoniese apparate gebruik, word verlaag van 12½% (Algemeen) en 7½% (Voorkeur) na 5% (Algemeen) en vry (Voorkeur).

No. R. 777 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 1 (No. 1/1/62)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 48 of the Customs and Excise Act, 1964, hereby amend Schedule 1 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 777 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 1 (No. 1/1/62)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 48 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 1 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I Tariff Heading		II Statistical Unit	III Rate of Duty	IV	V
			General	M.F.N.	Preferential
82.05	By the insertion after subheading No. 82.05.40 of the following:				
	"82.05.50 Cutting tools tipped with tungsten carbide for machine tools for working metal or metal carbides	no.	17%	15%	12% (U.K.)"
82.07	By the substitution for tariff heading No. 82.07 of the following:				
	"82.07 TOOL-TIPS AND PLATES, STICKS AND THE LIKE FOR TOOL-TIPS, UNMOUNTED, OF SINTERED METAL CARBIDES (FOR EXAMPLE, CARBIDES OF TUNGSTEN, MOLYBDENUM OR VANADIUM):				
	.10 Tungsten carbide tips for cutting tools for use with machine tools for working metal or metal carbides	no.	15%		
	.90 Other	no.	free"		

NOTES.—1. The duty on certain cutting tools tipped with tungsten carbide and tungsten carbide tips for cutting tools is increased to the extent indicated.

2. Goods which comply with the requirements of item 460.10 may be allowed under rebate of duty under that item.

BYLAE

I		II	III	IV	V
Tariefpos		Statistiese Eenheid	Skaal van Reg		
			Algemeen	M.B.N.	Voorkeur
82.05	Deur na subpos No. 82.05.40 die volgende in te voeg:				
	„82.05.50 Snygereedskap met wolframkarbiedpunte vir masjiengereedskap vir die bewerking van metaal of metaalkarbiede	getal	17%	15%	12% (V.K.)"
82.07	Deur tariefpos No. 82.07 deur die volgende te vervang:				
	„82.07 GEREEDSKAPPUNTE EN PLATE, STAWE EN SOORTGELYKE GOEDERE VIR GEREEDSKAPPUNTE, ONGEMONTEER, VAN SINTERMETAALKARBIEDE (BYVOORBEELD, WOLFRAM-, MOLIBDEEN- OF VANADIUMKARBIEDE):				
	.10 Wolframkarbiedpunte vir snygereedskap vir gebruik met masjiengereedskap vir die bewerking van metaal of metaalkarbiede	getal	15%		
	.90 Ander	getal	vry"		

OPMERKINGS.— 1. Die reg op sekere snygereedskap met wolframkarbiedpunte en wolframkarbiedpunte vir snygereedskap word verhoog in die mate aangetoon.
2. Goedere wat aan die vereistes van item 460.10 voldoen kan by dié item met korting op reg toegelaat word.

No. R. 782 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 3 (No. 3/257)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 75 of the Customs and Excise Act, 1964, hereby amend Schedule 3 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 782 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 3 (No. 3/257)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 75 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 3 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I	II	III
Item	Tariff Heading and Description	Extent of Rebate
316.13	By the insertion after paragraph (2) of tariff heading No. 84.06 of the following:	
	"(3) Finished inlet and exhaust valves, in such quantities and at such times and subject to such conditions as the Secretary for Industries may allow by specific permit	Full duty"
317.03	By the substitution in paragraph (I) for paragraph (1) of tariff heading No. 84.06 of the following:	
	"(1) Pistons, gudgeon pins, cast iron piston rings and cast iron cylinder liners and sleeves, except for motor vehicles of a gross vehicle weight of less than 22,400 lb. for the transport of goods or materials not being any motor vehicle specified in paragraph (III) of this item	Full duty less 20%"
	By the insertion in paragraph (I) after paragraph (2) of tariff heading No. 84.06 of the following:	
	"(3) Finished inlet and exhaust valves, excluding:	Full duty less 20%"
	(a) valves for motor vehicles of a gross vehicle weight of less than 22,400 lb. for the transport of goods or materials, not being any motor vehicle specified in paragraph (III) of this item, and	
	(b) valves, in such quantities and at such times and subject to such conditions as the Secretary for Industries may allow by specific permit	

NOTE.—Provision is made for a rebate of duty on finished inlet and exhaust valves, for the manufacture of internal combustion piston engines and motor vehicles, in such quantities and at such times and subject to such conditions as the Secretary for Industries may allow by specific permit.

BYLAE

I Item	II Tariefpos en Beskrywing	III Mate van Korting
316.13	Deur na paragraaf (2) van tariefpos No. 84.06 die volgende in te voeg:	
	„(3) Afgewerkte in- en uitlaatkleppe, in die hoeveelhede en op die tye en onderworpe aan die voorwaardes wat die Sekretaris van Nywerheidswese by bepaalde permit toelaat	Volle reg"
317.03	Deur in paragraaf (1), paragraaf (1) van tariefpos No. 84.06 deur die volgende te vervang:	
	„(1) Suiers, suierpenne, gegote ystersuierringe en gegote ystersilindervoerings en -hulse, behalwe vir motorvoertuie met 'n bruto voertuiggewig van minder as 22,400 lb., vir die vervoer van goedere of materiale, maar nie enige motorvoertuig in paragraaf (III) van hierdie item vermeld nie	Volle reg min 20%"
	Deur in paragraaf (1), na paragraaf (2) van tariefpos No. 84.06 die volgende in te voeg:	
	„(3) Afgewerkte in- en uitlaatkleppe, uitgesonderd:	Volle reg min 20%"
	(a) kleppe vir motorvoertuie met 'n bruto voertuiggewig van minder as 22,400 lb. vir die vervoer van goedere of materiale, maar nie enige motorvoertuig in paragraaf (III) van hierdie item vermeld nie, en	
	(b) kleppe, in die hoeveelhede en op die tye en onderworpe aan die voorwaardes wat die Sekretaris van Nywerheidswese by bepaalde permit toelaat	

OPMERKING.—Voorsiening word gemaak vir 'n korting op reg op afgewerkte in- en uitlaatkleppe, vir die vervaardiging van binnebrandsuierenjins en motorvoertuie, in die hoeveelhede en op die tye en onderworpe aan die voorwaardes wat die Sekretaris van Nywerheidswese by bepaalde permit toelaat.

No. R. 781 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 3 (No. 3/256)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 75 of the Customs and Excise Act, 1964, hereby amend Schedule 3 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 781 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 3 (No. 3/256)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 75 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 3 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I Item	II Tariff Heading and Description	III Extent of Rebate
316.04	By the deletion of tariff heading No. 85.18.	
316.10	By the deletion of paragraph (4) of tariff heading No. 85.00 and by renumbering paragraphs (5), (6) and (7) as (4), (5) and (6), respectively.	
316.12	By the deletion of tariff heading No. 85.18.	
318.02	By the deletion of tariff heading No. 85.18.	

NOTE.—The provisions for a rebate of duty on electrical capacitors, for use in various industries, are withdrawn.

BYLAE

I Item	II Tariefpos en Beskrywing	III Mate van Korting
316.04	Deur tariefpos No. 85.18 te skrap.	
316.10	Deur paragraaf (4) van tariefpos No. 85.00 te skrap en paragrawe (5), (6) en (7) te hernommer na (4), (5) en (6), onderskeidelik.	
316.12	Deur tariefpos No. 85.18 te skrap.	
318.02	Deur tariefpos No. 85.18 te skrap.	

OPMERKING.—Die voorsienings vir 'n korting op reg op elektriese kapasitors, vir gebruik in verskillende nywerhede, word ingetrek.

No. R. 779 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 1 (No. 1/1/64)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 48 of the Customs and Excise Act, 1964, hereby amend Schedule 1 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 779 14 Mei 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 1 (No. 1/1/64)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 48 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 1 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I		II	III	IV	V
Tariff Heading		Statistical Unit	Rate of Duty		
			General	M.F.N.	Preferential
87.07	By the substitution for subheading No. 87.07.10 of the following:				
	"87.07.05 Fork-lift trucks, counterweight balanced (excluding parts thereof):				
	.10 Pedestrian type	no.	17%		10% (U.K.; Canada)
	.20 Rider type, imported with or incorporating compression ignition engines as defined in Note 8 to this Section	no.	17% plus 26 000c each		10% plus 26 000c each (U.K.; Canada)
	.30 Rider type, electric powered	no.	17%		10% (U.K.; Canada)
	.90 Other	no.	17%		10% (U.K.; Canada)
	87.07.08 Fork-lift trucks, side loading type (excluding parts thereof):				
	.10 Imported with or incorporating compression ignition engines as defined in Note 8 to this Section	no.	17% plus 26 000c each		10% plus 26 000c each (U.K.; Canada)
	.90 Other	no.	17%		10% (U.K.; Canada)
	87.07.12 Other fork-lift trucks, including stackers, reach-type trucks and four-way reach-type trucks (excluding parts thereof):				
	.10 Pedestrian type	no.	17%		10% (U.K.; Canada)
	.20 Rider type, imported with or incorporating compression ignition engines as defined in Note 8 to this Section	no.	17% plus 26 000c each		10% plus 26 000c each (U.K.; Canada)
	.90 Other	no.	17%		10% (U.K.; Canada)"

***Note.*—Specific provision, for statistical purposes, is made for different types of fork-lift trucks.**

BYLAE

I Tariefpos		II Statistiese Eenheid	III Skaal van Reg Algemeen	IV M.B.N.	V Voorkeur
87.07	Deur subpos No. 87.07.10 deur die volgende te vervang:				
"87.07.05	Vurkheftrokke, teenwiggebalanseer (uitgesonderd onderdele daarvan):				
.10	Voetgangertipe	getal	17%		10% (V.K.; Kanada)
.20	Ruitertipe, ingevoer met of wat kompressie-ontstekingsenjins soos omskryf in Opmerking 8 by hierdie Afdeling inkorporeer	getal	17% plus 26 000c elk		10% plus 26 000c elk (V.K.; Kanada)
.30	Ruitertipe, elektries aangedrewe	getal	17%		10% (V.K.; Kanada)
.90	Ander	getal	17%		10% (V.K.; Kanada)
87.07.08	Vurkheftrokke, kantlaaitipe (uitgesonderd onderdele daarvan):				
.10	Ingevoer met of wat kompressie - ontstekingsenjins soos omskryf in Opmerking 8 by hierdie Afdeling inkorporeer	getal	17% plus 26 000c elk		10% plus 26 000c elk (V.K.; Kanada)
.90	Ander	getal	17%		10% (V.K.; Kanada)
87.07.12	Ander vurkheftrokke, met inbegrip van stapelaars, reiktipe trokke en vierwegreiktipe trokke (uitgesonderd onderdele daarvan):				
.10	Voetgangertipe	getal	17%		10% (V.K.; Kanada)
.20	Ruitertipe, ingevoer met of wat kompressie-ontstekingsenjins soos omskryf in Opmerking 8 by hierdie Afdeling inkorporeer	getal	17% plus 26 000c elk		10% plus 26 000c elk (V.K.; Kanada)
.90	Ander	getal	17%		10% (V.K.; Kanada)"

Opmerking.—Spesifieke voorsiening, vir statistiese doeleindes, word vir verskillende tipes vurkheftrokke gemaak.

No. R. 780 14 May 1971

CUSTOMS AND EXCISE ACT, 1964.—AMENDMENT OF SCHEDULE 2 (No. 2/72)

I, Nicolaas Diederichs, Minister of Finance, acting in terms of the powers vested in me by section 55 of the Customs and Excise Act, 1964, hereby amend Schedule 2 to the said Act to the extent set out in the Schedule hereto.

N. DIEDERICHS, Minister of Finance.

No. R. 780 14 May 1971

DOEANE- EN AKSYNSWET, 1964.—WYSIGING VAN BYLAE 2 (No. 2/72)

Ek, Nicolaas Diederichs, Minister van Finansies, handelende kragtens die bevoegdheid my verleen by artikel 55 van die Doeane- en Aksynswet, 1964, wysig hierby Bylae 2 van genoemde Wet in die mate in die Bylae hiervan aangetoon.

N. DIEDERICHS, Minister van Finansies.

SCHEDULE

I Item	II Tariff Heading and Description	III Rebate Items	IV Territories
208.01	By the insertion before item 208.02 of the following: "208.01 **Raw hides and skins (excluding furskins) and leather** 41.08 Imitation patent leather		Brazil"

NOTE.—Provision is made for an ordinary anti-dumping duty on imitation patent leather if imported from or originating in Brazil.

BYLAE

I Item	II Tariefpos en Beskrywing	III Korting-items	IV Gebiede
208.01	Deur voor item 208.02 die volgende in te voeg: "208.01 **Ongelooide huide en velle (uitgesonderd pelsvelle) en leer** 41.08 Nagemaakte lakleer		Brasilië"

OPMERKING—Voorsiening word gemaak vir 'n gewone anti-dumpingreg of nagemaakte lakleer ingevoer of afkomstig van Brasilië.

DEPARTMENT OF HEALTH

No. R. 783 14 May 1971

THE SOUTH AFRICAN MEDICAL AND DENTAL COUNCIL

The Minister of Health has, in terms of section 94 (4) of the Medical, Dental and Pharmacy Act, 1928 (Act 13 of 1928), as amended, approved the following rules made by the South African Medical and Dental Council under section 32 of the said Act:

Rules Regarding the Registration of Oral Hygienists

1. The Council may grant a registration certificate as an oral hygienist to any person who has obtained a qualification in oral hygiene granted after examination by any institution or examining body approved by resolution of the Council from time to time as competent to grant such qualification.

2. Where, in the case of an application for a registration certificate, the institution or examining body on whose certificate of qualification the application is based has not already been approved by the Council, the applicant shall be required to cause the Council to be furnished with authoritative information as to the standard of training given thereat, whereupon, if such standard of training is considered satisfactory by the Council, such institution or examining body may be approved.

3. All applicants for registration under these rules shall be required to submit the qualifications by virtue of which they claim to be registered, together with—

(a) a declaration of identity sworn before a justice of the peace or commissioner of oaths;

(b) a certificate of good character signed by a registered person, a minister of religion, magistrate, or other responsible person;

(c) a certificate from a registered medical practitioner to the effect that the health of the applicant is not such as in the interest of patients or himself to render it inadvisable that such applicant should engage in oral hygiene;

(d) a sworn declaration before a justice of the peace or commissioner of oaths by the applicant that he has never been debarred from practice in any country by reason of misdemeanour or professional misconduct;

(e) a fee of R10 for registration.

4. The Council may require proof of the authenticity and validity of the qualification.

DEPARTEMENT VAN GESONDHEID

No. R. 783 14 Mei 1971

DIE SUID-AFRIKAANSE GENEESKUNDIGE EN TANDHEELKUNDIGE RAAD

Die Minister van Gesondheid het kragtens artikel 94 (4) van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet 13 van 1928), soos gewysig, sy goedkeuring geheg aan die volgende reëls opgestel deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad kragtens artikel 32 van genoemde Wet:

Reëls Betreffende die Registrasie van Mondhigiëniste

1. Die Raad kan 'n sertifikaat van registrasie as mondhigiënis aan 'n persoon toeken wat 'n kwalifikasie in mondhigiëne behaal het, toegeken nadat hy deur 'n inrigting of eksaminerende liggaam wat van tyd tot tyd by besluit van die Raad goedgekeur is as bevoeg om sodanige kwalifikasie uit te reik, geëksamineer is.

2. Waar, in die geval van 'n aansoek om 'n registrasiesertifikaat, die inrigting of eksaminerende liggaam op wie se sertifikaat van kwalifikasie die aansoek gebaseer is, nie reeds deur die Raad goedgekeur is nie, moet die applikant gesaghebbende inligting aan die Raad laat verstrek betreffende die standaard van opleiding aldaar, waarna, indien sodanige standaard van opleiding deur die Raad bevredigend geag word, dié inrigting of eksaminerende liggaam goedgekeur mag word.

3. Alle applikante vir registrasie ooreenkomstig hierdie reëls moet die kwalifikasies op grond waarvan hulle aanspraak op registrasie maak, indien, tesame met—

(a) 'n verklaring van identiteit wat voor 'n vrederegter of kommissaris van ede beëdig is;

(b) 'n sertifikaat van goeie karakter, geteken deur 'n geregistreerde persoon, 'n predikant, landdros, of ander verantwoordelike persoon;

(c) 'n sertifikaat van 'n geregistreerde geneesheer dat die gesondheid van die applikant nie sodanig is dat dit in die belang van pasiënte of in sy eie belang onraadsaam is dat die applikant mondhigiëne uitoefen nie;

(d) 'n beëdigde verklaring voor 'n vrederegter of kommissaris van ede deur die applikant afgelê dat hy nooit in enige land as gevolg van 'n misdryf of professionele wangedrag verbied is om te praktiseer nie;

(e) 'n bedrag van R10 vir registrasie.

4. Die Raad kan vereis dat bewys gelewer word van die egtheid en geldigheid van die kwalifikasie.

No. R. 784 14 May 1971

THE SOUTH AFRICAN MEDICAL AND DENTAL COUNCIL

The Minister of Health has, in terms of section 94 (4) of the Medical, Dental and Pharmacy Act, 1928 (Act 13 of 1928), as amended, approved the following rules made by the South African Medical and Dental Council under section 94 (2) (k) of the said Act:

Rules Regarding the Conditions under which Registered Oral Hygienists may Carry on their Calling

1. A registered oral hygienist shall not—

(a) undertake any work in oral hygiene except under the direction and control of a registered dentist;

(b) for the purpose of obtaining work or of promoting his own professional interests, directly or indirectly advertise himself in any manner or procure, sanction or acquiesce in the publication of matter commending or directing attention to his professional skill, knowledge, services or qualifications or deprecating the professional skill, knowledge, service or qualifications of any other registered person.

2. A registered oral hygienist contravening or failing to comply with any of the above rules shall be liable to a fine not exceeding R20.

No. R. 784 14 Mei 1971

DIE SUID-AFRIKAANSE GENEESKUNDIGE EN TANDHEELKUNDIGE RAAD

Die Minister van Gesondheid het kragtens artikel 94 (4) van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet 13 van 1928), soos gewysig, sy goedkeuring geheg aan die volgende reëls opgestel deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad kragtens artikel 94 (2) (k) van genoemde Wet:

Reëls Betreffende die Voorwaardes Waarop Geregistreerde Mondhigiëniste hulle Beroep mag Uitoefen

1. 'n Geregistreerde mondhigiënis mag nie—

(a) werk in mondhigiëne onderneem nie, uitgesonderd onder die leiding en beheer van 'n geregistreerde tandarts;

(b) met die doel om werk te verkry of om sy eie professionele belange te bevorder, homself regstreeks of onregstreeks op enige manier adverteer, of die publikasie van enigiets wat 'n aanbeveling bevat van, of die aandag vestig op, sy professionele bekwaamheid, kennis, dienste of kwalifikasies, of wat afbreuk doen aan die professionele bekwaamheid, kennis, dienste of kwalifikasies van enige ander geregistreerde persoon verkry, goedkeur of stilswyend toelaat nie.

2. 'n Geregistreerde mondhigiënis wat enige van bostaande reëls oortree of versuim om dit na te kom, is strafbaar met 'n boete van hoogstens R20.