C M S A
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EXAMINATIONS & CREDENTIALS
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March 2019

R E G U L A T I O N S

FOR ADMISSION TO THE FELLOWSHIP OF

THE COLLEGE OF PHYSICIANS OF SOUTH AFRICA

FCP(SA)

The examination comprises Part I and Part II: The Part I is valid for six (6) years and Part II must be passed within four (4) years of completing training time.
Should training not be completed before the validity of the FCP(SA) Part I has lapsed, a candidate can apply to the President of the College of Physicians for extension of validity of the FCP(SA) Part I result.

1.0 EXIT LEVEL OUTCOMES

1.1 The candidate who passes these examinations must be able to fulfil the role of a specialist general physician in the medical and academic communities, and in society at large.

1.2 Central to these examinations is their licensing function: persons awarded the FCP(SA) who, in addition, fulfil the other requirements of the Medical, Dental and Supplementary Health Services Act may register and practice as specialist general physicians in terms of the Act.

1.3 The following paragraphs briefly outline the range of competencies that can be expected of the specialist general physician. The specialist general physician should be competent to:

1.3.1 **Assess patients:**
- 1.3.1.1 Competently perform a clinical interview and physical examination
- 1.3.1.2 Accurately identify and interpret relevant clinical findings
- 1.3.1.3 Succinctly define clinical problems and formulate a working diagnosis

1.3.2 **Manage patients:**
- 1.3.2.1 Select and, where needed, perform appropriate investigations
- 1.3.2.2 Initiate appropriate treatment based on best available evidence
- 1.3.2.3 Refer patients for further specialised care, when appropriate
- 1.3.2.4 Educate and counsel patients regarding their clinical problems
- 1.3.2.5 Plan and provide appropriate follow up
- 1.3.2.6 Keep adequate clinical records of all practice activities
- 1.3.2.7 Effectively communicate with health care workers in verbal and written format

1.3.3 **Acquire new information and critically evaluate its quality and utility:**
- 1.3.3.1 Access information using electronic and traditional methods
- 1.3.3.2 Engage in continuing professional development activities
- 1.3.3.3 Critically appraise the quality, relevance and utility of new information

1.3.4 **Function as an effective team member in the broad context of health care:**
- 1.3.4.1 Treat all health care workers with respect
- 1.3.4.2 Recognise the roles other health care workers play; consult appropriately
- 1.3.4.3 Provide leadership when called upon to do so

1.3.5 **Advise patients, and the broader community, on matters pertaining to health promotion and disease prevention:**
- 1.3.5.1 Educate patients regarding health promotion and disease prevention
- 1.3.5.2 Demonstrate an awareness of health promotion and disease prevention priorities and strategies

1.3.6../

1.3.6 **Play an active role in training other health care workers:**
1.3.6.1 Regularly participate in academic teaching activities
1.3.6.2 Regularly participate in academic meetings
1.3.7 **Engage in research**

2.0 ADMISSION TO THE EXAMINATION

(read in conjunction with the Instructions for Admission to CMSA Examinations)

PART 1 (Basic sciences related to the practice of internal medicine):

2.1 A candidate may be admitted to Part I of the examination having
2.1.1 A post-internship qualification to practice medicine which is registered or registrable with the Health Professions Council of South Africa (HPCSA)

PART II (Principles and practice of internal medicine)

2.2 A candidate may be admitted to Part II of the examination having:
2.2.1 A post-community service qualification to practice medicine which is registered or registrable with the Health Professions Council of South Africa (HPCSA)
2.2.2 Completed two and six month (30 months) full-time post-internship training as a medical registrar/clinical assistant in either of the following combinations:
2.2.2.1 All two years and six months (30 months) in a teaching hospital department of medicine
OR
2.2.2.2 Two years in a teaching hospital department of medicine plus six months (6) as a registrar in a satellite teaching department
2.2.3 Successfully completed Part I of the examination or be exempt from the Part I
2.2.4 Candidates who have completed both Part I and Part 2 of the MRCP(UK) will be exempt from the Part I
2.2.5 Supervisors' approval of the candidates' portfolio. It is recommended that all candidates entering into their registrar training from 1 January 2019 use the LogBox online portfolio. This is a free service and the app is available in both Apple and Android format. Please register at www.logbox.co.za.[1]
2.2.6. All applications (including those from previously unsuccessful candidates) must include a current letter from the Head of the Department of Medicine to confirm eligibility to sit the FCP (SA) Part II examination.

2.3 The CMSA may accept part-time training from registrars who have completed 4 years in a teaching hospital including 1½ years full-time training, provided the candidate submits evidence of prior approval by the Health Professions Council of South Africa of a part-time training programme acceptable for specialist registration

2.4 Training is valid for a period of four (4) years from the date of completion in a numbered speciality training post. In exceptional circumstances candidates who do not successfully complete the examination within this period may motivate, with support from their HOD, to the College of Physicians for a once off extension.

2.5 Candidates who have worked as a medical officer in recognised academic institution in South Africa or as a registrar in numbered post in the UK may have part or all of this time recognised as training time by the HPCSA

2.6 Supervisors' approval of the candidate's logbook

2.7 The CMSA Senate, through its Examinations and Credentials Committee, will review every application for admission to the examination, and may also consider the professional and ethical standing of the candidate

3.0../

[1] LogBox recommendation effective for new Registrars – 1 January 2019

3.0 GUIDELINES FOR PREPARATION FOR THE EXAMINATION (Appendices A - E)

3.1 **Training objectives**:

Candidates preparing for the examination are advised to pay particular attention to the following aspects of training and professional development:

3.1.1 **Knowledge:**

- 3.1.1.1 Broad overview of human biology at the genetic, molecular biochemical and cellular level
- 3.1.1.2 Normal anatomy and physiology of all organ systems of the human body including the immune system
- 3.1.1.3 Physiological changes of adolescence, ageing and pregnancy
- 3.1.1.4 Pathophysiological changes due to disease, including the patho-physiological explanations of the signs and symptoms
- 3.1.1.5 Principles of laboratory diagnostic methods and imaging techniques
- 3.1.1.6 Principles of pharmacotherapeutics, drug trials and pharmacoeconomics
- 3.1.1.7 Principles of evidence-based medicine
- 3.1.1.8 Principles of rehabilitation and palliative care
- 3.1.1.9 Human rights and the principles of medical ethics and good clinical practice
- 3.1.1.10 Medico-legal aspects of health care in South Africa
- 3.1.1.11 Overview of the South African public health care system
- 3.1.1.12 Overview of patterns of disease in South Africa
- 3.1.1.13 Principles of medical audit and quality assurance
- 3.1.1.14 Principles of research methods, inclusive of statistical analysis

3.1.2 **Skills:**

- 3.1.2.1 ***Clinical:***
  - 3.1.2.1.1 history-taking and clinical examination techniques
  - 3.1.2.1.2 clinical reasoning and problem solving
  - 3.1.2.1.3 decision-making and prioritisation
  - 3.1.2.1.4 interpretation of laboratory and other investigatory data
- 3.1.2.2 ***Diagnostic and therapeutic procedures***
- 3.1.2.3 ***Communication:***
  - 3.1.2.3.1 **oral**: appropriate to patients, public, health care workers, academic audiences
  - 3.1.2.3.2 **written**: record keeping, referral letters, medical reports, academic writing
- 3.1.2.4 ***Information management:***
  - 3.1.2.4.1 data access using traditional and electronic techniques
  - 3.1.2.4.2 critical appraisal of information sources and information
- 3.1.2.5 ***Research*:**
  - 3.1.2.5.1 critical appraisal of research methods
  - 3.1.2.5.2 analysis and interpretation of data
- 3.1.2.6 ***Teaching and training***:
  - 3.1.2.6.1 education of patients and communities
  - 3.1.2.6.2 teaching and training of students and fellow colleagues

3.1.3 **Professional behaviour and personal attributes**:

- 3.1.3.1 Respect for the rights and values of others; treat everyone with dignity
- 3.1.3.2 Capacity for self-reflection and critical appraisal
- 3.1.3.3 Capacity to work as a member of a health care team
- 3.1.3.4 Insight into personal strengths and a recognition of personal limitations
- 3.1.3.5 Ability to recognise and effectively deal with personal stress
- 3.1.3.6 Ability to care for oneself, including seeking health care when needed
- 3.1.3.7 Discipline and insight to continue learning to maintain clinical competence
- 3.1.3.8 Dedication to serving the interests of patients at all times
- 3.1.3.9 Promotion of justice and equity in the health care system
- 3.1.3.10 Maintenance of integrity and honesty in professional practice

3.2 **Core Curriculum: (See Appendices A and B)**

In order to assist candidates preparing for the Part I and Part II of the examination, a core curriculum has been outlined.

3.3 **Recommended learning resources: (See Appendix C)**

4.0…/

4.0 FORMAT OF THE EXAMINATION

4.1 **Part I: (Basic sciences related to the practice of internal medicine):**

4.1.1 One MCQ paper of 3 hours duration, with 150 questions in the "best of four format".

4.1.2 The pass mark for the MCQ will be determined using Cohen's method of standard setting. Using this method the pass mark is determined as a percentage, eg 65% of the 95th percentile of the scores achieved by candidates sitting the examination. Negative marking will not apply, but there will be a "correction for guessing" formula applied. Candidates are therefore encouraged to answer ALL ITEMS in the test.

4.2 **Part II:**

4.2.1 **MCQ Paper:** Two MCQ paper on the principles and practice of medicine, including applied basic science, diagnosis and treatment (3 hours each). Each MCQ paper will have 75 questions in the "best of four format". A single mark will be awarded for the 150 MCQ questions.

4.2.2 **Objective Test**: This will include: slide/photograph recognition, the interpretation of radiographs, electrocardiograms, laboratory data, short case-histories and other material as problem-solving exercises (3 hours). There will be 30 questions, each comprising 6 marks.

4.2.3 The pass mark for the MCQ Paper, and Objective test will be determined using Cohen's method of standard setting. Using this method the pass mark is determined as a percentage, eg 65% of the 95th percentile of the scores achieved by candidates sitting the examination. (Please see the website for full reference document). Negative marking will not apply to the MCQ but there will be a 'Correction for guessing" formula applied. Candidates are therefore encouraged to answer all items in the test.

4.2.4 **Clinical Examination:** Candidates will be tested on clinical aspects of internal medicine, relevant investigations and management, and will be observed during the examination to assess their clinical skills and attitude towards patients

4.2.4.1 One long case to be studied at the bedside for one hour

4.2.4.2 Two short cases to be studied at the bedside, each for 30 minutes

4.2.4.3 Guidelines to candidates and examiners are given in Appendix D

Candidates entering into their training from 1 January 2017 will only have 4 years after they complete their training to attempt the FCP(SA) Part II.[2]

5.0 CONDUCT OF THE EXAMINATION (Appendices D-E)

5.1 In order to pass the FCP(SA) Part II written examination, and subsequently be invited to the clinical examination, candidates must achieve: i) an *overall* pass score across the MCQ and Objective Test (OT) papers in combination and ii) pass both the MCQ and OT papers' subminimum pass marks.

5.2 Each candidate will be assessed by a different pair of examiners for each of the clinical cases in Part II of the examination. For the long case one (1) hour will be allocated for the assessment of the case and 40 minutes for the examination. For each of the short cases 30 minutes will be allocated for the assessment and 25 minutes for the examination.

5.3 The examiners will submit their assessments in percentages for Part I and Part II of the examination

5.4 In order to pass the examination, candidates must obtain:

- A pass mark by the Cohen method for Part I of the examination, AND
- A pass mark by the Cohen method for each written component of Part II of the examination (MCQ paper, and Objective test), AND
- 50% or more for at least two of the three clinical cases in Part II of the examination, AND an average of at least 50% for all the clinical cases

5.5 The three components of Part II of the examination will be weighted as follows:

- The MCQ papers will contribute 20% to the final mark (10% for each paper)
- The Objective test will contribute 20% to the final mark
- Clinical cases will contribute 60% to the final mark (30% for long case and 15% for each short case)

5.6 Candidates who achieve the required marks in the written component of the examination but who fail the oral and clinical examinations will be exempt from the written component of the next examination session. Such exemption applies to one sitting only and must be exercised in the following semester.

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[2] New rule regarding expiry of training time

6.0 ADMISSION AS A FELLOW

6.1 Only candidates who have completed training in a CMSA recognised registrar post may be awarded a fellowship if successful in the examination.

6.2 **Candidates who have written the examination as a prerequisite from the HPCSA for inclusion on the specialist register are not eligible to be awarded a Fellowship but will be sent a letter confirming their success in the examinations**

All other candidates will be asked to sign a declaration as below:

I, the undersigned, …….……..... do solemnly and sincerely declare

that while a member of the CMSA I will at all times do all within my power to promote the objectives of the CMSA and uphold the dignity of the CMSA and its members

that I will observe the provisions of the Memorandum and Articles of Association, By-laws, Regulations and Code of Ethics of the CMSA as in force from time to time

that I will obey every lawful summons issued by order of the Senate of the said CMSA, having no reasonable excuse to the contrary

and I make this solemn declaration faithfully promising to adhere to its terms

Signed at ……..……..…… this ……..……....…. day of

…….. 20 ……..

Signature ……..…….

Witness ……
(who must be a Founder, Associate Founder, Fellow, Member, Diplomate or Commissioner of Oaths)

6.3 A two-thirds majority of members of the CMSA Senate present at the relevant meeting shall be necessary for the award to any candidate of a Fellowship

6.4 A Fellow shall be entitled to the appropriate form of certificate under the seal of the CMSA

6.5 In the event of a candidate not being awarded the Fellowship (after having passed the examination) the examination fee shall be refunded in full excluding HPCSA candidates who are not entitled to a Fellowship

6.6 The first annual subscription is due one year after registration (statements are rendered annually)

APPENDICES
A – D

A **Guidelines for the Part I Examination**
B **Guidelines for the Part II Examination**
C **Guidelines for convenors and examiners**
D **Marking the MCQ papers: The "Cohen' method" of standard setting and correction for guessing**

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March 2019

A P P E N D I X A

GUIDELINES FOR THE PART I EXAMINATION OF THE FCP(SA)

- **GENERAL GUIDELINES**
- **CORE CURRICULUM**
- **RECOMMENDED LEARNING RESOURCES**
- **FORMAT OF THE PART I EXAMINATION**
- **BLUEPRINT OF THE MCQ PAPER**

GENERAL GUIDELINES FOR CANDIDATES

1. Recognised training centres should have a supervisor for registrars in training. The supervisor should be on the panel of examiners and be familiar with the examination and the CMSA regulations
2. The role of the supervisor should include discussion of the regulations for the FCP(SA) examination with prospective candidates; indication of the breadth and depth required for different aspects of the examination; discussion of the methods of assessments used in the examination, informing the candidate of the limitations of his or her hospital as a training institution
3. On written request written reports on their performance will be made available to unsuccessful candidates after the examinations from the Academic Registrar of the CMSA or the convenor. These must be such as to allow unsuccessful candidates to learn where they have made mistakes and correct their deficiencies in specific areas

CORE SYLLABUS FOR PART I

The syllabus is based on the following principles:

1. It is built on an *outcome-based educational model*. In other words, knowledge is not sought for its own sake, but should translate into an actual, measurable competence (in this case, competence as a specialist physician).
2. It is therefore built around the knowledge required to understand and manage health and illness appropriately, rather than around abstract principles.
3. It is mainly system-based.
4. 50% of the examination will be based on basic core sciences predominantly physiology and the other 50% of the examination will focus on pathophysiology (see blueprint listed at end of appendix A).

CARDIOVASCULAR SYSTEM

Anatomy	• Microanatomy of cardiac muscle
	• Structure and function of endothelium
	• Surface anatomy of the heart
	• Coronary circulation
	• Conducting system of the heart
	• Systemic arterial circulation and venous drainage
Physiology	• Determinants, control and measurement of cardiac output
	• Myocardial perfusion
	• Mechanisms of cardiac muscle contraction and relaxation
	• Control of blood pressure
	• The cardiac cycle – integration of contraction, heart sounds, pressure curves and surface ECG
	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Rheumatic fever
	• Rheumatic valvular disease
	• Degenerative valve disease- Aortic Stenosis
	• Infective endocarditis
	• Hypertensive heart disease
	• Ischaemic heart disease
	• Pericardial disease
	• Cardiomyopathy
	• Hypertensive disorders of pregnancy
	• Secondary hypertension

CELL BIOLOGY

Core Sciences	• Cell membrane - structure and function
	• Cytoplasmic organelles - structure and function
	• Cytoskeleton - structure and function
	• Cell membrane, cytoplasmic and nuclear receptors – structures and functions
	• Second messenger systems
	• Transport across cell membranes
	• Intercellular connections
	• Cell adhesion molecules - structure and function
	• The cell cycle including mechanisms of regulation
	• Cell death – apoptosis and necrosis
	• Oxidation of fuels and synthesis of ATP (Krebs cycle)
	• Free radicals
	• The biology of ageing
Pathophysiology	• Malignancies of HIV: specify specifically for KS and Burkhitts
	• Colon/gastric carcinoma
	• Breast carcinoma
	• Bronchogenic carcinoma
	• Myeloma
	• Prostatic carcinoma
	• Cervical carcinoma

CONNECTIVE TISSUE, SOFT TISSUE AND JOINTS

Anatomy	• Structure of synovial joints
	• Microanatomy and function of the synovium
Clinical chemistry	• Purine metabolism
	• Collagen types and metabolism
Physiology	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Osteoarthritis
	• Gout
	• Infective arthritis
	• Rheumatoid arthritis

ENDOCRINE SYSTEM AND METABOLISM

Anatomy	• Surface and microanatomy of the thyroid and parathyroid glands
	• Microanatomy of the hypothalamus and pituitary
	• Microanatomy of the adrenal glands
	• Structure and microanatomy of bone
	• Hypophyseal-pituitary portal blood supply
Physiology	• Hypothalamic-pituitary-adrenal axis
	• Anterior and posterior pituitary hormone synthesis, function and regulation
	• Thyroid hormone synthesis, function and regulation
	• Male and female endocrine function
	• Menopause
	• Changes in adolescence, pregnancy and elderly
	• Glucose homeostasis
	• Calcium homeostasis and bone metabolism
	• Control of body temperature
	• Control of body weight
Pathophysiology	• Diabetes, including diabeteic ketoacidosis and hyperosmolar hyperglycaemic emergencies
	• Hyper- and hypothyroidism
	• Gestational diabetes
	• Osteoporosis

GASTROINTESTINAL TRACT AND LIVER …/

GASTROINTESTINAL TRACT AND LIVER

Anatomy	• Surface anatomy of the liver
	• Microanatomy of the gastrointestinal tract, pancreas, liver and biliary tract
	• Anatomy of the stomach
	• Portal circulation
	• Blood supply and venous drainage of the liver
Physiology	• Hormonal and autonomic control of GIT function
	• Acid secretion in the stomach
	• Digestive juices and pancreatic enzymes
	• Digestion and absorption of carbohydrates, lipids and proteins
	• Functions of the liver
	• Formation and excretion of bile
	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Viral hepatitis - Hepatitis A/B/C
	• Alcoholic liver disease
	• Chronic liver disease and portal hypertension
	• Drug induced liver injury
	• Diarrhoea
	• Liver abscesses
	• Peptic ulcer disease
	• Gastrooesophageal reflux disease
	• Infective colitis

GENETICS

Core Sciences	• DNA synthesis, structure and function, including mitochondrial DNA
	• The cell cycle, including mitosis and meiosis
	• Chromosome structure and function, including mitochondrial chromosome
	• Patterns of Mendelian inheritance
	• Telomeres and immortality
	• Genetic mutations
	• Genetic basis of cancer – proto-oncogenes, oncogenes and tumour suppressor genes
Diagnostic modalities	• Restriction enzymes and gel electrophoresis
	• Southern blotting and DNA probes
	• Polymerase chain reaction (PCR)
	• DNA cloning and sequencing
	• Restriction fragment length polymorphisms
	• Gene knockout mouse models
Pathophysiology	• Down's syndrome
	• Cystic fibosis
	• Hereditary haemochromatosis
	• Sickle cell
	• Haemophilia A
	• Adult polycystic kidney disease
	• Hypercholesterolaemia

GERIATRIC MEDICINE

Physiology	• Biology of ageing
	• Age-related changes in body composition
	• Altered pharmacokinetics and pharmacodynamics
	• Homeostatic changes
	• Age-related changes in the different organs, tissues and cells
Pathophysiology	• Frailty syndrome
	• Pathophysiology related to ageing
	• Incontinence

HAEMOPOIETIC SYSTEM

Anatomy	• Surface anatomy and microanatomy of the spleen
	• Microstructure of bone marrow
Clinical chemistry	• Haemoglobin structure
Physiology	• Blood and its constituents
	• Haemopoiesis
	• Functions of haemoglobin
	• Haemostasis, coagulation, fibrinolysis and antithrombotic pathways
	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Anaemia related to iron, folate and vitamin B12 deficiency or chronic inflammation
	• Abnormal clotting and abnormal bleeding
	• Haemolysis
	• Haematological malignancies – myeloma, lymphoma, leukaemia

IMMUNE SYSTEM

Anatomy	• Microanatomy of the lymph node and thymus
	• Systemic lymphatic drainage
Physiology	• Host defence mechanisms – innate and adaptive
	• Cells of the immune system
	• Neutrophil recruitment and functions
	• T cell recognition and activation
	• Antigen processing and presentation
	• Acute phase proteins, heat shock proteins, tumour necrosis factor
	• Complement system
	• Roles of cytokines, interferons and chemokines
	• Arachidonic acid metabolism
	• Mechanisms of inflammation including autoimmune responses
	• Synthesis, structure and function of immunoglobulins
	• Hypersensitivity immune responses – types I-IV
	• HLA system and function
	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Hypersensitivity reactions : anaphylaxis
	• Angioedema
	• Vaccination

INFECTIOUS DISEASES…/

INFECTIOUS DISEASES

Definitions of terms	• Epidemic, pandemic and endemic
Microbiology	• Classification of microbial pathogens • Life cycles of parasites (hydatid, schistosomiasis, ascaris, T solium, Malaria) • Transmission of infections • Biology of common SA Pathogens eg structure of HIV, TB bacillus, pneumococcus, influenza • Toxins and virulence factors produced by pathogens • Mechanisms of antimicrobial resistance
Physiology	• Systemic response to inflammation and infection (Sepsis) • Fever
Pathophysiology	• HIV
	• Opportunistic infections in HIV: pneumocystis, cryptococcus, herpes (HSV/VZV) toxoplasmosis
	• Tuberculosis
	• Malaria
	• Schistosomiasis
	• Giardiasis
	• Typhoid, non typhi salmonella
	• Cholera
	• Dysentery/traveller's diarrhoea
	• Current viral epidemics/endemics : eg Influenza/Ebola/Congo
	• Rabies
	• Diphtheria
	• Rickettsia
	• Neurocystercersosis
Infection control measures	• Measures to limit spread of infection and antimicrobial resistance
	• Limiting an outbreak of disease

METABOLISM AND NUTRITION

Core Sciences	• Lipid, protein, and carbohydrate synthesis and metabolism
	• Purine metabolism
	• Vitamin metabolism including B12 and folate
	• Iron metabolism
	• Porphyrin metabolism
	• Energy metabolism
	• Basic principles of nutrition
	• Changes in adolescence, pregnancy and the elderly
Pathophysiology	• Primary hypercholesterolaemia
	• Vitamin deficiency: thiamine, Vitamin B12, folate, Vitamin D, scurvy, pellagra

NERVOUS SYSTEM

Anatomy	• Microanatomy of nervous system cells
	• Gross structure of the brain and eye
	• Arterial supply and venous drainage of the brain
	• Circulation of cerebrospinal fluid
	• Structure of the basal ganglia, brain stem and cerebellum
	• Cranial nerve nuclei and pathways
	• Autonomic nervous system pathways
	• Visual pathways
	• Sensory and motor pathways
	• Structure of the meninges
	• Cross-section and blood supply of the spinal cord
	• Structure and relations of the cavernous sinus
Physiology	• Neurotransmitters
	• Reflex arc
	• Production of cerebrospinal fluid
	• Functions of neurons and neuromuscular junction
	• Cerebral cortex functions
	• Pain
	• Cerebellar functions
	• Autonomic functions
	• Arousal, consciousness and sleep
	• Changes of adolescence, pregnancy and the elderly

Pathophysiology …/

Pathophysiology	• Stroke
	• Raised intracranial pressure
	• Peripheral neuropathy
	• Meningitis: bacterial, and viral and fungal
	• Effects of alcohol on the nervous system
	• Parkinsons disease
	• Dementia – Alzheimer's and vascular

PHARMACOTHERAPEUTICS/TOXICOLOGY

Core Sciences	• Pharmacokinetics
	• Factors affecting drug dosing
	• Principles of drug metabolism
	• Drug use in renal, cardiac, GIT and liver disease
	• Drug use in pregnancy
	• Drug use in the elderly
	• Types of adverse drug reactions and drug-induced allergy
	• Principles of drug-food interactions and drug-drug interactions
	• Pharmacodynamics
Pathophysiology	Mechanism of action and side effects of commonly used therapies: • Analgesics • Antibiotics • Antiretroviral therapy • Antituberculosis therapy • Antiepileptics • Contraceptives • Drugs for hypertension • Drugs for heart failure • Drugs for diabetes • Drugs for COPD/asthma • Glucocorticoids • Statins • Warfarin/heparin
	Overdoses: • Paracetamol • Theophylline • Tricyclics • Organophosphate • Ethylene glycol

RENAL SYSTEM, FLUID AND ELECTROLYTE BALANCE

Anatomy	• Position, surface anatomy and microanatomy of the kidneys (nephron)
Physiology	• Glomerular and tubular function
	• Acid-base balance
	• Water and electrolyte balance
	• Volumes and composition of body fluid compartments and control thereof
	• Endocrine functions of the kidney
	• Changes in adolescence, pregnancy and the elderly
Diagnostic modalities	• Creatinine clearance: Principles, calculation and interpretation
	• Calculation of the anion gap
Pathophysiology	• Acute renal failure: acute tubular necrosis
	• Primary hypertension (not secondary hypertension)
	• Electrolytes: high and low sodium, magnesium, potassium and calcium
	• Pyelonephritis
	• Nephritic and nephrotic syndrome

RESEARCH SKILLS AND USE OF EVIDENCE

Statistics	• Definitions of mean, median, standard deviation
	• Interpretation of confidence intervals and p values
	• Sensitivity and specificity
	• Positive and negative predictive values
	• Interpretation of parametric and non-parametric data tests commonly used: student's T test, Chi square analysis, Fisher's exact test, ANOVA
	• Correlation
	• Risk reduction and numbers needed to treat
	• Relative risk and hazard ratio
	• Regression analysis
	• Interpretation of kappa values
	• Survival analysis
Clinical trials	• Types
	• Bias
	• Generalisability from trials to clinical practice
	• Principles of meta-analysis
	• Levels of evidence
Medical writing	• Types of article
	• Principles of plagiarism, copyright and authorship
Medical literature	• Principles of evaluating articles and submission and review processes
	• Journal and article ranking
Evidence-based medicine	• Principles

RESPIRATORY SYSTEM

Anatomy	• Respiratory tract, including sinuses
	• Surface anatomy of the lungs
	• Microanatomy of the respiratory epithelium and acinus
Physiology	• Defence mechanisms of the lung
	• Mechanics of respiration
	• Control of breathing
	• Gas exchange and transport
	• Maintenance of normal PaO_2 and $PaCO_2$
	• Changes in adolescence, pregnancy and the elderly
	• Adaptations to altitude
Clinical chemistry	• Acid-base balance
	• Haemoglobin-oxygen dissociation curve
Pathophysiology	• Chronic obstructive pulmonary disease
	• Asthma
	• Pulmonary thromboembolic disease
	• Bronchiectasis
	• Pneumonia
	• Lung abscess

THE SKIN

Anatomy	• Microanatomy of the skin
Physiology	• Function of the skin
Applied sciences	• Morphological description of skin lesions
Pathophysiology	• Urticarial rash/eczema
Pregnancy	• Hypertensive disorders • Gestational diabetes

Prescribed text books[3]

1. Naish, Jeannette and Court Denise: Medical Sciences 2nd edition, published by Elsevier
2. Kumar and Clark's Clinical Medicine, published by Elsevier
3. Harris M, Taylor G. Medical and health statistics made easy. Published by Jones and Bartlett Publishers.

OTHER LEARNING RESOURCES

1. McPhee SJ and Ganong WF. Pathophysiology of disease. An introduction to clinical medicine. Published by Lange Medical Books
2. Ganong WF, Review of Medical Physiology. Published by Lang Medical Books
3. Gibbon, CJ. *South African Medicines Formulary (SAMF).* South African Medical Association, latest edition.
4. Sackett, DL et al. *Evidence-based medicine: How to practice and teach EBM.* Edinburgh; Churchill Livingstone, latest edition

FORMAT OF THE PART I EXAMINATION

1. The Part I of the FCP(SA) examination will consist of one MCQ paper of 3 hours duration.
2. There will be 150 multiple choice questions in the "**best of 4 options"** format.
3. There will be NO negative marking
4. The paper will be divided into 50% pathophysiology and 50% physiology.
5. The pass mark for the MCQ will be determined using Cohen's method of standard setting. Using this method the pass mark is determined as a percentage, eg 65% of the 95th percentile of the scores achieved by candidates sitting the examination. (see website for details)
6. Candidates must bring an ordinary calculator to the examination.
7. MCQ paper's Blueprint: [4]

Discipline	**No of Questions**	
	Pathophysiology	**Physiology**
Bones and Joints	3	1
Cardiology	6	5
Cell biology/cancer	3	6
Endocrinology	6	5
Gastroenterology	3	4
Hepatology	3	4
Genetics	2	2
Geriatrics	2	3
Haematology	5	5
Immunology	3	6
Infectious diseases	6	5
Metabolism/Nutrition	4	5
Nephrology	6	5
Neurology	5	5
Pregnancy	2	1
Pulmonology	6	5
Research/Statistics		6
Skin	1	1
Therapeutics/Toxicology	4	4
Sub Total	**70**	**80**

JOHANNESBURG
March 2019

[3] Blueprints updated
[3] Prescribed reading updated September 2018

A P P E N D I X B

GUIDELINES FOR THE PART II EXAMINATION OF THE FCP(SA)

- GENERAL GUIDELINES
- CORE SYLLABUS
- RECOMMENDED LEARNING RESOURCES
- FORMAT OF THE WRITTEN EXAMINATIONS
- BLUEPRINT OF THE THEORY PAPERS
- BLUEPRINT OF THE OBJECTIVE TEST
- GUIDELINES ON EXAMINATION TECHNIQUE FOR FCP (SA) WRITTEN EXAMINATIONS
- GUIDELINES ON THE CLINICAL EXAMINATION
- MARKING GUIDELINE FOR THE CLINICAL EXAMINATION

GUIDELINES FOR CANDIDATES AND EXAMINERS

1.0 Candidates:

1.1 Recognised training centres should have a supervisor for registrars in training. The supervisor should be on the panel of examiners and be familiar with the examination and the CMSA regulations

1.2 The role of the supervisor should include discussion of the regulations for the FCP(SA) examination with prospective candidates; indication of the breadth and depth required for different aspects of the examination; discussion of the methods of assessments used in the examination, informing the candidate of the limitations of his or her hospital as a training institution

1.3 The written papers and the clinical examinations will be moderated by a moderator from outside the examining centre

1.4 On written request written reports on their performance will be made available to unsuccessful candidates after the examinations from the CMSA convenor. These must be such as to allow unsuccessful candidates to learn where they have made mistakes and correct their deficiencies in specific areas

2.0 Examiners:

2.1 Questions and memoranda must be submitted timeously to the convenor

2.2 Question papers will be carefully reviewed by the convenor and moderators before the examinations, and all care will be taken to ensure that the questions are appropriate and free from ambiguities, grammatical errors, errors of vocabulary and spelling errors

2.2 At least two examiners will examine each candidate for each of the clinical cases. Examiners should play a minor role in the examination of candidates with whom they have worked closely in the recent past

2.3 In the clinical parts of the examinations, each pair of examiners will submit a single mark. Discrepancies between the assessments will be discussed at the examiners meeting. The consistency of the examinations as a whole will be assessed

2.4 Examiners should familiarise themselves with the basic theoretical considerations involved in assessment

2.5 All new examiners should undergo a period of familiarisation during which they act as observers of the clinical examination

Core syllabus for Part II…/

CORE SYLLABUS FOR PART II

While this is not intended to serve as an exhaustive list of all medical conditions likely to be encountered by the specialist general physician in practice in South Africa, the listed conditions have been grouped according to systems and prioritised to emphasise those conditions where comprehensive generalist care is the expected norm

1.0 Cardinal manifestations of disease:

This list of common clinical presentations is not restricted to disease of one organ system, since a broad differential diagnosis usually needs to be considered. Candidates presenting for the examination are expected to have developed a clinical approach to all these fundamental manifestations of illness and to:

1.1 Define the clinical problems and formulate a differential diagnosis
1.2 Select appropriate investigations in order to make a final diagnosis
1.3 Interpret the results of the investigations

2.0 Must know:

These are medical conditions encountered in South African medical practice. Candidates should be able to recognise, diagnose and provide comprehensive care for these conditions. Candidates are expected to:

2.1 Recognise the clinical presentation
2.2 Demonstrate a good understanding of aetiological risk factors
2.3 Demonstrate a good understanding of pathophysiological mechanisms
2.4 Select, perform as needed, and interpret appropriate investigations
2.5 Formulate a comprehensive treatment plan, including emergency, acute and long term care
2.6 Demonstrate a good understanding of the natural history and long term complications of the condition
2.7 Recognise indications for referral for further specialised care
2.8 Demonstrate a good understanding of therapeutic interventions appropriate to the condition

3.0 Must recognise:

Patients presenting with these conditions usually require referral for further specialised management. The candidate is expected to recognise patients presenting with features of these conditions, provide initial care and refer them appropriately. The specialist general physician may be expected to provide further long term care of these patients once stabilised. The candidate is thus expected to:

3.1 Recognise the clinical presentation
3.2 Demonstrate a basic understanding of pathophysiological mechanisms
3.3 Select, perform as needed, and interpret preliminary investigations
3.4 Provide initial medical care prior to referral
3.5 Facilitate referral for appropriate specialised management
3.6 Provide long term care and follow up for stable patients with the condition

CARDINAL MANIFESTATIONS OF ILLNESS

• Abdominal pain	• Abdominal swelling	• Alopecia
• Alteration in bowel habits	• Anorexia	• Ataxia
• Back pain	• Bone pain	• Bradycardia
• Bruising and easy bleeding	• Chest pain	• Clubbing
• Confusion	• Constipation	• Co-ordination impairment
• Cough	• Cyanosis	• Depressed level of consciousness
• Diarrhoea	• Dyspepsia	• Dysphagia
• Dyspnoea	• Fatigue	• Fever and rigors
• Flushing	• Gait disturbances	• Galactorrhoea
• Gaze disturbances	• Gynaecomastia	• Haematemesis, and/or melaena
• Haematuria	• Haemoptysis	• Headache
• Hearing disturbances	• Hepatomegaly	• Hirsutism
• Hoarseness	• Hypertension	• Jaundice
• Joint pain and/or swelling	• Lymphadenopathy	• Memory impairment
• Meningism	• Menstrual disturbances	• Mono-, hemi-, para-, quadraparesis
• Movement disorders	• Muscle cramps	• Muscle weakness
• Musculoskeletal aches and pains	• Nausea and vomiting	• Night sweats
• Obesity	• Odynophagia	• Oedema
• Oral manifestations of illness	• Pain	• Pallor
• Palpitations	• Paraesthesia	• Pigmentary changes of skin
• Polydipsia	• Polyuria	• Proptosis
• Proteinuria	• Pruritus	• Rectal bleeding
• Seizures	• Shock	• Skin lesions
• Speech disturbances	• Splenomegaly	• Syncope
• Tachycardia	• Tachypnoea	• Thrombosis
• Tremor	• Urinary incontinence	• Urinary retention
• Vertigo and dizziness	• Visual disturbances	• Weight loss
• Wheezing		

DISORDERS OF THE CARDIOVASCULAR SYSTEM

Must know

• Beri-beri	• Chronic atrial fibrillation	• Cor pulmonale
• Dilated cardiomyopathy	• Heart failure	• Hypertension
• Infective endocarditis	• Ischaemic heart disease	• Pericardial disease
• Peripheral vascular disease	• Rheumatic fever	• Shock
• Syncope	• Valvular heart disease	

Must recognise

• Acute peripheral arterial occlusion	• Aortic dissection	• Atrial myxoma
• Conduction disturbances	• Congenital heart disease in adults	• Drug-induced cardiac injury
• Myocarditis	• Other arrhythmias	• Other cardiomyopathies

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Chest X-ray	• Pericardiocentesis	• Electrocardiography
• Echocardiography		• Exercise stress test
• Cardiac catheterisation		
• Radionuclide studies		
• Pacemaker insertion		
• Aortic angiogram		
• Venous Doppler studies		
• Arterial Doppler studies		

Interpretation of diagnostic test results

• Biomarkers of cardiac disease	• Chest X-ray	• Electrocardiography
• Exercise stress test		

DISORDERS OF CONNECTIVE TISSUE, SOFT TISSUE AND JOINTS

Must know

• Gout	• Mechanical back pain	• Osteoarthritis
• Raynaud's phenomenon	• Reactive arthritis	• Rheumatoid arthritis
• Septic arthritis	• Soft tissue rheumatism	• Systemic lupus erythematosus

Must recognize…/

Must recognise

• Giant cell arteritis	• Hereditary connective tissue disorders	• Inflammatory myositis
• Neuropathic arthritis	• Osteomyelitis	• Osteonecrosis
• Polymyalgia rheumatica	• Pseudogout	• Rheumatic manifestations of systemic disease
• Rheumatic manifestations of HIV infection / AIDS	• Scleroderma	• Sicca syndrome
• Spondyloarthropathies	• Systemic vasculitis	• Undifferentiated / mixed connective tissue disorders

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Injection and / or aspiration of wrist, ankle, elbow, shoulder		• Injection and / or aspiration of knee
• MRI of musculoskeletal system		
• X-ray of peripheral joints, sacroiliac joints and spine		

Interpretation of diagnostic test results

• Autoimmune serology	• Interpretation of x-rays of peripheral joints	• Synovial fluid analysis

EMERGENCY CARE AND CRITICAL CARE

Must know

• Acute coronary syndrome	• Acute envenomation: snake bites, spider bites, scorpion stings, bee and wasp stings	• Acute psychosis
• Acute respiratory distress	• Acute severe asthma	• Alcohol-related toxicity
• Anaphylaxis	• Angio-oedema	• Cardiac arrest
• Cardiac tamponade	• Coma	• Diabetic emergencies
• Heat exhaustion and heat stroke	• Hypertensive emergencies	• Hypothermia
• Lightning strike or electrocution	• Massive haemoptysis	• Near drowning
• Pulmonary oedema	• Respiratory arrest	• Shock
• Status epilepticus	• Stridor	• Suspected poisoning or drug overdose

Must recognise

• Addisonian crisis	• Bradyarrhythmias	• Malignant hyperthermia
• Myasthenic crisis	• Myxoedema coma	• Severe electrolyte disturbances
• Tachyarrhythmias	• Tetany	• Thyroid storm

Diagnostic or therapeutic procedures relevant to the disciplines

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Emergency cricothyroidotomy		• Cardioversion
• Arterial line insertion		• Defibrillation
• Swan Ganz catheter insertion		• Central venous line insertion
		• Cardiopulmonary resuscitation
		• Endotracheal intubation
		• Mechanical ventilation

Interpretation of diagnostic test results

• Central venous pressure monitoring		

DISORDERS OF THE ENDOCRINE SYSTEM AND METABOLISM

Must know

• Chronic corticosteroid use	• Diabetes mellitus	• Dyslipidaemia
• Goitre	• Hyperthyroidism	• Hypothyroidism
• Metabolic syndrome	• Obesity	• Osteoporosis
• Syndrome of inappropriate ADH	• Thyroid nodule	• Undernutrition
• Vitamin deficiencies		

Must recognise

• Adrenocortical disorders	• Adrenomedullary disorders	• Delayed puberty
• Diabetes insipidus	• Disorders of calcium metabolism	• Hypogonadism
• Iron overload	• Lipodystrophies	• Metabolic bone disease
• Paget's disease	• Paraneoplastic syndromes	• Parathyroid disorders
• Pituitary disorders	• Porphyria	• Precocious puberty
• Sexual differentiation disorders	• Short stature	• Spontaneous hypoglycaemia
• Syndromes of multiple endocrine dysfunction	• Virilisation	

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Bone mass measurement (DEXA)		• Glucose tolerance test
• CT / MRI of pituitary fossa, adrenal glands		
• Dynamic endocrine tests		
• FNAB of thyroid		
• Thyroid isotope scan		
• Thyroid ultrasound		

Interpretation of diagnostic test results

• Bone mass measurement (DEXA)	• Fasting lipid profile	• Glucose tolerance test
• Glycated haemoglobin	• Microalbuminuria	• Thyroid isotope scan

DISORDERS OF THE GASTROINTESTINAL AND HEPATOBILIARY SYSTEM

Must know

• Acute cholecystitis	• Acute liver failure	• Alcohol-related liver disease
• Ascites	• Chronic diarrhoea	• Chronic liver disease
• Diverticular disease	• Drug handling in liver disease	• Drug-induced liver injury
• Dysentry	• Functional bowel syndrome	• Gastrointestinal manifestations of HIV infection / AIDS
• Gastrointestinal tuberculosis	• Gastro-oeosphageal reflux disease	• Liver abscess
• Non-alcoholic steatohepatitis	• Peptic ulcer disease	• Portal hypertension
• Primary liver cancer	• Pseudomembranous colitis	• Viral hepatitis

Must recognise

• Ano-rectal disorders	• Cancer of the colon	• Cancer of the oesophagus
• Coeliac disease	• Gall stones	• Inflammatory bowel disease
• Malabsorption syndromes	• Metastatic liver cancer	• Oesophageal dysmotility
• Other chronic hepatitis	• Pancreatitis	• Sclerosing cholangitis
• Stomach cancer	• Vascular abnormalities of liver	• Vascular abnormalities of GIT
• Whipple's disease		

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
24-hour oesophageal pH monitoring		• Percutaneous liver biopsy
• Barium contrast studies		
• CT of the abdomen		
• ERCP / MRCP		
• Evaluation of H. pylori infection		
• Evaluation of malabsorption		
• Evaluation of oesophageal reflux		
• Lower GIT endoscopy		
• Ultrasound of the abdomen		
• Upper GIT endoscopy		
• X-ray of the abdomen		

Interpretation of diagnostic test results…/

Interpretation of diagnostic test results

• 72-hour stool collection for faecal fat	• Autoimmune serology	• Evaluation of H. pylori infection
• Evaluation of malabsorption	• Liver enzymes and synthetic function	• Stool occult blood test
• Viral hepatitis serology		

GERIATRIC MEDICINE

Must know

• Anaemia	• Chronic constipation	• Confusional states (delirium, depression, dementia)
• Cardio-metabolic diseases with specific reference to the elderly	• Dermatological: pressure ulcers, leg ulcers, pruritis, dermatitis and skin neoplasms	• Electrolyte disturbances
• Dizzy spells and syncope	• Falls	• Frailty
• Functional assessment	• Insomnia and sleep hygiene	• Immunosenescence and infections
• Legal and ethical issues	• Multimorbidity	• Nutritional deficiencies

Must recognise

• Abuse of the elderly	• Alzheimer's disease	• Faecal incontinence

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Assessment of elder abuse • Cognitive tests Verbal fluency assessment Maze testing Verbal word list learning. Montreal cognitive assessment test (MOCA). • Driving safety assessment • Evaluation of carer stress and burnout. • Tilt table testing	• Cognitive Tests Trail making test A and B	• Clinical assessment of frailty • Comprehensive Geriatric Assessment • Cognitive assessment – MMSE Mini-cog Clock drawing test • Geriatric Depression Scale. • Mobility assessment – including: balance, gait, fall risk • Nutritional assessment – mini-nutritional assessment. • Pre-operative risk assessment

DISORDERS OF THE HAEMOPOEITIC SYSTEM, INCLUDING ONCOLOGY

Must know

• Anaemia	• Care of the neutropaenic patient	• Haematological manifestations of HIV infection / AIDS
• Polycythaemia	• Thrombocytopaenia	• Thrombophilia
• Thrombotic microangiopathies	• Use of blood products	

Must recognise

• Clotting factor disorders	• Disorders of platelets	• Drug-induced haemopoietic injury
• Haemoglobinopathies	• Leukaemias	• Lymphomas
• Myelodysplasic syndromes	• Myeloma	• Myeloproliferative disorders
• Paraneoplastic syndromes		

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Excision lymph node biopsy	• Bone marrow aspirate and trephine	
• Plasmapheresis		

Interpretation of diagnostic test results

• Coagulation profile	• Full blood count and smear	• Haematinic markers
• Haemoglobin electrophoresis	• Protein electrophoresis	

DISORDERS OF THE IMMUNE SYSTEM

Must know

• Hypersensitivity reactions		

Must recognise

• Graft vs host diseases	• Other acquired immunodeficiency syndromes	• Primary immunodeficiency syndrome
• Transplant rejection		

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Skin prick tests		

Interpretations of diagnostic test results

• Complement assays	• Immunoglobulin assays	

INFECTIOUS DISEASES
This is a broad category encompassing many conditions. A few, particularly relevant to South Africa, are highlighted

Must know

• Amoebiasis	• Cholera	• Cysticercosis
• Fever of unknown origin	• HIV infection / AIDS	• Hydatid disease
• Immunisation and vaccines	• Malaria	• Nosocomial infections
• Opportunistic infections	• Other common infections in adults	• Rabies
• Schistosomiasis	• Sepsis	• Sexually transmitted infections
• Tetanus	• Tick bite fever	• Tuberculosis
• Typhoid	• Viral hemorrhagic fevers	• Worm infestations

Must recognise

• Travel medicine		

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
		• Fine needle aspiration biopsy

Interpretation of diagnostic test results

• CD 4 count	• HIV viral load	• Immunoglobulin and complement assays
• Microscopy and culture of body fluids and tissue samples	• Serological tests	

DISORDERS OF THE NERVOUS SYSTEM

Must know

• Acute and chronic alcohol-induced nervous system injury /toxicity	• Acute polyneuropathy	• Cerebrovascular disease
• Chronic headache syndromes	• Delirium	• Dementia
• Epilepsy	• Meningitis	• Meningo-encephalitis
• Neurological manifestations of HIV infection / AIDS	• Parkinson's disease	• Peripheral neuropathy
• Proximal myopathy	• Spinal cord syndromes	

Must recognise

• Benign intracranial hypertension	• Cerebellar disorders	• Cranial nerve palsies
• Depression	• Mononeuropathy	• Motor neurone disease
• Movement disorders	• Multiple sclerosis	• Myasthenia gravis
• Optic neuritis	• Other muscle disorders	• Paraneoplastic syndromes

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Cerebral angiography		• Bedside autonomic function testing
• CT of the brain / spinal cord		• Lumbar puncture
• EEG study		
• EMG study		
• MRI of the brain /spinal cord		
• Nerve conduction study		

Interpretation of diagnostic test results

• Bedside autonomic function testing	• CT and MRI of the brain and spinal cord	• Lumbar puncture

DISORDERS OF THE RENAL SYSTEM, FLUID AND ELECTROLYTE BALANCE

Must know

• Acid-base disturbances	• Acute renal failure	• Acute tubular necrosis
• Chronic kidney disease	• Diabetic renal disease	• Drug handling in renal disease
• Drug-induced renal injury	• End stage renal disease	• Fluid and electrolyte disturbances
• Glomerulonephritis	• Hypertensive renal disease	• Interstitial nephritis
• Nephrotic syndrome	• Renal manifestations of HIV infection / AIDS	• Urinary tract infections

Must recognise

• Athero-embolic renal disease	• Autosomal dominant polycystic kidney disease	• Kidney stones
• Obstructive uropathy	• Patients on renal replacement therapy	• Renal and bladder cancer
• Renal artery stenosis	• Renal tubular acidosis	

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	Indications for use and have performed under supervision.	Indications for use and can perform independently
• Captopril renogram	• Peritoneal dialysis	• Glomerular filtration rate calculation
• Haemodialysis		• Microscopy of urine sediment
• Intravenous pyelogram		• Urine dipstick examination
• Renal angiogram		
• Renal biopsy		
• Renal ultrasound		

Interpretation of diagnostic test results

• Captopril renogram	• Electrolytes, urea, creatinine and osmolality of blood and urine	• Glomerular filtration rate calculation
• Microscopy of urine sediment	• Urine dipstick examination	• Urine protein estimation (24-hour collection)
• Urine protein estimation (spot sample)		

DISORDERS OF THE RESPIRATORY SYSTEM

Must know

• Acute respiratory failure	• Asthma	• Atelectasis
• Atopy	• Bronchiectasis	• Cavitating pulmonary lesion(s)
• Chronic obstructive pulmonary disease	• Chronic respiratory failure	• Empyema
• Lung abscess	• Mass lesion(s) on chest X-ray	• Pleural effusion
• Pneumonia	• Pneumothorax	• Primary lung cancer
• Pulmonary hypertension	• Pulmonary manifestations of HIV infection /AIDS	• Pulmonary thromboembolic disease
• Pulmonary tuberculosis		

Must recognise

• Adult Respiratory Distress Syndrome	• Pulmonary vasculitic / haemorrhage syndromes	• Mediastinal mass lesion(s)
• Occupational lung disease	• Cystic fibrosis	• Sleep apnoea
• Sarcoidosis	• Acute mediastinitis	• Drug-induced lung injury
• Pulmonary eosinophilia	• Metastatic lung cancer	• Restrictive chest wall disease
• Diffuse parenchymal lung disease	• Paraneoplastic syndromes	• Mesothelioma

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Bronchoscopy	• Spirometry and flow volume loop	• Induced sputum sample collection
• Chest X-ray		• Peak flow measurement
• Closed thorascopy		• Closed pleural biopsy
• High-resolution CT of lungs		• Mechanical ventilation
• Lung biopsy		• Insertion of intercostal drain
• Sleep study		• Pulse oximetry
• Spiral CT of lungs		• Pleural aspirate
• Tracheostomy		• Administration of nebulised medication
• Ventilation-perfusion scan		• Arterial blood gas
		• Demonstration of correct inhaler technique

Interpretation of diagnostic test results

• Arterial blood gas	• Chest X-ray	• Peak flow measurement
• Pulse oximetry	• Spirometry and flow volume loop	• Thoracocentesis
• Ventilation-perfusion scan		

DISORDERS OF THE SKIN…/

DISORDERS OF THE SKIN

Must know

• Candidiasis	• Cellulitis	• Drug induced reactions – local and systemic
• Herpes simplex	• Herpes zoster	• Impetigo
• Mucocutaneous manifestations of HIV infection / AIDS	• Scabies	• Stevens-Johnson syndrome
• Tinea	• Toxic epidermal necrolysis	

Must recognise

• Acne	• Cutaneous phakomatoses	• Discoid lupus erythematosus
• Eczema / dermatitis	• Leprosy	• Mucocutaneous manifestations of systemic disease
• Panniculitis	• Paraneoplastic syndromes	• Psoriasis
• Skin cancer	• Viral warts	• Vitiligo

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Skin biopsy		
• Skin scraping for fungal infections		

WOMEN'S HEALTH AND MEN'S HEALTH

Must know

• Erectile dysfunction	• Medical complications of pregnancy	• Medical diseases in pregnancy
• Medical issues relevant to use of hormone replacement therapy	• Medical issues relevant to use of oral contraception	• Menopause

Must recognise

• Breast cancer	• Breast lump	• Ovarian cancer
• Prostate cancer	• Prostatism	• Scrotal mass

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Mammography		

Interpretation of diagnostic test results

• PSA levels		

ETHICAL AND LEGAL ASPECTS OF MEDICAL PRACTICE

• Allocation of scarce resources	• Assessment of brain death	• Basic human rights
• End-of-life decisions, including "living will"	• Euthanasia	• Informed consent
• Organ and tissue donation	• Patient autonomy	• Patient confidentiality
• Perverse incentives	• Principles of ethics	• Professional conflict of interest
• Religious customs relevant to end-of-life context	• Religious customs relevant to tissue/blood product use	• Research on human subjects
• The impaired practitioner	• Unnatural causes of death	

Diagnostic or therapeutic procedures relevant to the discipline

Indications for use and have observed, where possible	**Indications for use and have performed under supervision.**	**Indications for use and can perform independently**
• Emergency certification (psychiatric)	• Assault form completion	• Consent form completion
	• Brain death assessment	• Cremation certificate completion
	• Medical insurance form completion	• Death certificate completion
	• Medico-legal reporting	• Post-mortem request form

JOHANNESBURG
March 2019

RECOMMENDED LEARNING RESOURCES

1. **General textbooks of medicine**:
   - Braunwald, E et al. Harrison's principles of internal medicine. New York; London, McGraw-Hill, Medical Pub. Division, latest edition.
   - Warrell, DA et al. Oxford Textbook of Medicine. Oxford: Oxford University Press, latest edition.
   - Kumar P, Clark M. Clinical Medicine. Edinburgh. Elsevier. Latest edition
   - Talley, NJ and O'Connor, S. Clinical examination: a systematic guide to physical diagnosis. Oxford: Blackwell Science, latest edition.
   - Ganong, WF Physiology. Prentice-Hall International Inc, latest edition.
   - Guyton, AC and Hall, JE. Textbook of medical physiology. Philadelphia, Pa.; London: WB Saunders, latest edition.
   - McPhee. SJ et al. Pathophysiology of disease. East Norwalk, Conn.: Appleton & Lange: Hemel Hempstead: Prentice Hall, latest edition.
   - Evam J Begg. Instant clinical Pharmacology, Published by Blackwell Publishing, Ltd.
   - Rang, HP et al. Pharmacology, Edinburgh; Churchill Livingstone, latest edition.
   - Gibbon, CJ. South African Medicines Formulary (SAMF). South African Medical Association, latest edition.
   - Sackett, DL et al. Evidence-based medicine: How to practice and teach EBM. Edinburgh; Churchill Livingstone, latest edition.
   - Harris M, Taylor G. Medical and Health Statistics made easy. Published by Jones and Bartlett Publishers
   - Houghton AR, Gray D. Making Sense of the ECG. Cases for Self-Assessment. Hodder Arnold, 2009: http://www.hoddereducation.com

2. **Reviews and seminal articles in leading medicine journals**:
   - New England Journal of Medicine
   - Lancet
   - British Medical Journal
   - Annals of Internal Medicine
   - Journal of the American Medical Association
   - South African Medical Journal

3. Videos in clinical medicine
   - Teaching videos for procedural techniques
   - Available on website: www.nejm.org

FORMAT OF THE WRITTEN EXAMINATIONS:

1. The written component of the Part II of the examination will consist of one MCQ paper, written in two sittings and an objective test.
2. The MCQ paper
   a) The MCQ papers will have 75 questions each, for a total of 150 questions in a "best of four format"
   b) Negative marking will not apply, but there will be a "correction for guessing" formula applied. (For methodological details see Appendix). The pass mark for the MCQ will be determined using Cohen's method of standard setting. Using this method the pass mark is determined as a percentage, eg 65% of the 95th percentile of the scores achieved by candidates sitting the examination.
3. The Objective test
   a) Objective test paper will comprise 30 questions and will be of 3 hours' duration.
   b) The questions will be equally weighted and will be of 6 marks each.
   c) The questions will include slide/photograph recognition, the interpretation of radiographs, electrocardiograms, laboratory data, short case-histories and other material such as problem-solving exercises
4. The MCQ paper and the objective test will be spread across all disciplines and be based on the core curricula and the recommended learning resources.
5. Questions will test higher orders of cognitive function and marks will be awarded for the following:
   a) Knowledge
      - Provision of the appropriate information.
      - Absence of inappropriate or incorrect information
   b) Understanding
      - Presentation in an order and a manner that demonstrates understanding of the subject
   c) Analysis
      - Ability to analyse and interpret a specific vignette or set of data
   d) Evaluation
      - Limiting information to the most relevant and appropriate information
      - Ability to rank information in terms of relevance to the specific question
   e) Integration and synthesis
      - Evidence of the ability to apply specific knowledge from one area more generally to problems drawn from another area.
6. In order to pass the FCP Part II written examination, and subsequently be invited to the clinical examination, candidates must achieve: i) an *overall* pass score across the MCQ and Objective Test (OT) papers in combination and ii) pass both the individual MCQ and OT papers' subminimum pass marks.

BLUEPRINT OF THE MCQ PAPER OF THE PART II

There will be 150 questions in the MCQ papers.
The questions will be in the 'best of four' format
The questions will be distributed as follows:

a)	Disorders of the cardiovascular system	12
b)	Disorders of connective tissue, soft tissue and joints	12
c)	Emergency care and critical care	12
d)	Disorders of the endocrine system and metabolism	12
e)	Disorders of the gastrointestinal and hepatobiliary system	12
f)	Geriatric Medicine	6
g)	Disorders of the haemopoeitic system, including oncology	12
h)	Disorders of the immune system	6
i)	Infectious diseases	12
j)	Disorders of the nervous system	12
k)	Disorders of the renal system, fluid and electrolyte balance	12
l)	Disorders of the respiratory system	12
m)	Disorders of the skin	6
n)	Ethical and legal aspects of medical practice	6
o)	Evidence based medicine	6

BLUEPRINT OF THE OBJECTIVE TEST OF THE PART II…/

BLUEPRINT OF THE OBJECTIVE TEST OF THE PART II

The 30 questions in the Objective test will be distributed as follows:

Three (3) questions each from the following sections:

Disorders of the Cardiovascular System
Disorders of the Connective Tissue, Soft Tissue and Joints and Immune system
Emergency and critical care
Disorders of the Endocrine System and Metabolism
Infectious Diseases
Disorders of the Renal System, Fluid and Electrolyte Balance
Disorders of the Respiratory System

PLUS 2 questions each from the following systems

Disorders of the Gastrointestinal Tract and Hepatobiliary system
Disorders of the Haemopoietic System, including oncology
Geriatric Medicine
Disorders of the Nervous System
The Skin (one question)

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GUIDELINES ON THE CLINICAL EXAMINATION

Each candidate will be examined on one long case and 2 short cases, each of a different system and examined by a different pair of examiners, ie there will be 3 pairs of examiners

1.0 THE LONG CASE:

1.1 **Candidates:**
Candidates will be given one hour to take a comprehensive history and do a complete physical examination on the patient. The patient will usually have multiple problems which may be related or unrelated. Thereafter the candidate will be required to present a problem-based clinical assessment with a differential diagnosis and management plan (an observer may be present). The candidate will be assessed for accuracy and completeness of the clinical assessment and management plan and the ability to interpret and integrate the results of relevant investigations into the management of the patient. In addition, candidates will be expected to demonstrate insight into preventive strategies and prognosis. Examiners may choose to expand the discussion to pathophysiology, pharmacology, genetics or other relevant areas

1.2 **Examiners:**
The standard is that which is expected of a competent specialist general physician

NOTE FOR EXAMINERS:

i) The purpose of the long case is to ensure that a candidate is able to elicit a history, perform a competent physical examination and formulate a reasonable plan of further investigation and management
ii) Ideally, examiners should have an opportunity to take a brief history and perform a physical examination on patients beforehand

2.0 THE SHORT CASE:

2.1 **Candidates:**
The candidate will be given 30 minutes each to obtain a brief history and conduct a physical examination on two short case patients. The candidate will be directed to a specific organ / system, but will be expected to identify related problems in other systems. The candidate will be assessed on the accuracy of the clinical findings, final differential diagnosis, interpretation of the severity of the problem and a plan for effective management

2.2 **Examiners:**
The standard is that which is expected of a competent specialist general physician

GUIDELINES FOR PRESENTATION OF CLINICAL CASES IN THE FCP(SA) PART II EXAMINATION

The time allocated for examination of candidates is as follows:

2 short cases – 25 minutes each (includes 5 minutes for the examiners to review the case)
1 long case – 40 minutes (includes 5 minutes for the examiners to review the case)

With the intention of improving the quality of presentations and standardising the method of presentations nationally, the following recommendations have been made:

1. The actual presentation of the case should take less than 10 minutes for each of the short cases, and less than 15 minutes for the long case. The remaining time is available for questioning the candidate.

2. The following format of presentation is recommended, the aim being for the candidate to provide a **succinct assessment of the patient in 3 or 4 sentences**.

The first sentence shoud…/

The first sentence should provide **brief biographical notes** on the patient to show

- that you have troubled to know the patient as person and not just as illness or case
- that you have insight into how the patient's occupation has impacted on the development of the illness or, conversely, how the illness has impacted on the daily life of the patient
  and,
- where relevant, that you have insight into the fact that the patient's occupation, habits, hobbies might have played a role in the genesis of the illness.

Some examples:
"this is Ms Cloete, a 34 year old single mother of two, previously employed as a saleswoman but who unfortunately has been unable to continue working since the onset of her illness; she has applied for a disability grant."

"I'd like to introduce Mr Buthelezi aged 59 who is married and has 3 adult children; Mr Buthelezi has worked underground in the goldmines since the age of 25. He has a 20 pack year smoking history."

"Mrs Martins is a 50 year old banking clerk and is the mother of 4 teenage children; she admits to a history of alcohol abuse following the death of her husband 12 years ago".

You then proceed to offer your **assessment** of the patient in the form of a

- **definitive diagnosis**, if that is possible **thus … "Ms Cloete ha**s systemic sclerosis which is complicated by interstitial pulmonary fibrosis and cor pulmonale".
- **problem,** your decision being that a definitive diagnosis without further investigations is not possible
  thus … "Mr Buthelezi has the problem of a large right pleural effusion for which the likeliest cause is carcinoma of the bronchus; he has also signs of chronic obstructive airways disease and, given his long mining history may also have underlying pneumoconiosis".
- **differential diagnosis**
  thus … "Mrs Martins has (signs of) chronic liver disease with decompensation; the likeliest cause is alcoholic cirrhosis but I should like also to investigate for autoimmune hepatitis or chronic hepatitis B leading to cirrhosis".

A comprehensive assessment, in addition to a "diagnosis", should include "relevant risk factors/aetiology", the concept of "chronicity" if relevant and important and relevant "complications".

This summary assessment should be justified by presenting pertinent features on history and clinical examination. If there is a differential diagnosis, these should be given in order of likelihood. In the instance of the long case, there may be several diagnoses / problems, but the above principles of presentation still apply.

The abovementioned method of presentation should provide for a more succinct and focused presentation and allow sufficient time for examiners to question the candidate on aspects of the clinical presentation (including the demonstration of physical signs), diagnosis and differential diagnosis, investigations and management.

MARKING GUIDE FOR EXAMINERS FOR CLINICAL CASES

MARK	DESCRIPTION
Less than 40% ***Please specify mark within this range***	The candidate: • Fails to elicit most of the important aspects of the history and/or physical examination, as would be expected of a competent specialist physician **OR** • Reaches his/her conclusions by fraudulent or dishonest means, in the examiners' opinion **OR** • Displays serious disrespect towards the patient
40 – 45% ***Please specify mark within this range***	The candidate: • Fails to elicit some important aspects of the history and/or physical examination, as would be expected of a competent specialist physician **OR** • "Manufactures" or finds features on history or physical examination which are, in fact, not present. ***Examiners must satisfy themselves by their own independent evaluation that this is the case*** **OR** • Is unable to make a pathophysiologically plausible clinical assessment, with an appropriate differential diagnosis, and a rational plan of further investigation.
52 - 69% ***Please specify mark within this range***	The candidate: • Successfully elicits most of the relevant aspects of the history and physical examination, as would be expected of a competent physician. *Examiners should be satisfied that no important aspects of the history or physical examination have been missed* **AND** • Makes a pathophysiologically plausible clinical assessment, with an appropriate differential diagnosis, and a rational plan of further investigation
70 - 74% ***Please specify mark within this range***	The candidate: • Successfully elicits all the relevant aspects of the history and physical examination, as would be expected of a competent physician **AND** • Makes a pathophysiologically plausible clinical assessment, with an appropriate differential diagnosis, and a rational plan of further investigation **AND** • Demonstrates clinical maturity, insight and a breadth of experience and knowledge
75-100% ***Please specify mark within this range***	The candidate: • Successfully elicits all the relevant aspects of the history and physical examination, as would be expected of a competent physician **AND** • Makes a pathophysiologically plausible clinical assessment, with an appropriate differential diagnosis, and a rational plan of further investigation **AND** • Demonstrates clinical maturity, insight and an outstanding grasp of clinical medicine, including both a broad and deep experience and theoretical knowledge

A P P E N D I X C

GUIDELINES FOR THE CONVENORS AND MODERATORS OF THE FCP (SA) EXAMINATION

GUIDELINES FOR CONVENORS

1. PART I – BASIC SCIENCES

- The convenor will be appointed from the approved examination panel and will be from the host medical school.
- The convenor has a central role in ensuring that the examination is conducted according to the Regulations of the College of Physicians and The Colleges of Medicine of South Africa (CMSA).
- The examination comprises 1 MCQ paper of 3 hours.
- The questions will be in the "best of five format"
- The convenor must ensure that all candidates are advised to bring a calculator to the examination.
- The syllabus of the College of Physicians as posted on the CMSA website must be used as a guide for the questions. See Appendix A
- The convenor and databank manager will select questions from the MCQ databank and add additional questions as required.
- A moderator from outside the examining centre will be appointed to moderate the paper
- The paper will be marked at the CMSA
- The convenor is to provide a short report on the conduct and outcome of the examination for the President of the College of Physicians.
- The convenor (or representative) is to be present at the Senate ratification meeting.
- All documents containing questions or model answers must be password protected.

2. PART 2 – PRINCIPLES AND PRACTICE OF MEDICINE

a) ***Written***

Comprises:

1. Objective Test (3 hours) – see guidelines for setting this test and blue print in Appendix B
2. 2 MCQ papers of 3 hours each – see guidelines for setting this test and blueprint in Appendix B

NB: All components must be based on the prescribed syllabus – examiners must be familiar with the latest version that is published on the CMSA website.

- An overall convenor must be appointed from the examiners panel and be from the host medical school.
- A national convenor for the objective test and for the MCQ must be appointed from the examiners panel. Each of the objective test and the MCQ will have a national panel appointed by the national convenor.
- The examinations should be peer reviewed and moderated by an external moderator.
- A panel of examiners for the clinical examinations must be selected from all 8 medical schools.

(b)…/

(b) ***Clinical***

Comprises:
1. One long case (1 hour)
2. Two short cases (30 minutes each)

} Each case must reflect a different system eg CVS, GIT, Respiratory

- short cases up to 25 minutes each (includes 5 minutes for examiners to review the case)
- long case up to 40 minutes (includes 5 minutes for examiners to review the case)

- Each candidate is seen by a separate pair of examiners for each case. Standardised case summary sheets must be used for case details and marking by examiners.
- Optimal pairing of examiners: Ideally junior examiners should always be paired with a more senior examiner.
- The examination timetable that candidates see should not reveal the names of examiners.
- Examiners should undergo training and standardisation prior to the examination, so that they examine in a uniform fashion.

- **Criteria for selection of examiners**

  A panel of examiners will be appointed for each biannual cycle of written examinations. One or more of these examiners should hold appointments at institutions other than the convening institution, and all should be involved in the setting and marking of the papers. Examiners will be selected by the President of the College of Physicians and the convenor

  Any one examiner may examine the same candidate in different parts of the examination

  An observer from the candidate's training institution should be invited to the oral examination, wherever possible

  Qualifications required: All examiners should hold one or more of the following degrees: FCP(SA), MMed (Internal Medicine), or the equivalent and be practising physicians

  Experience required: Normally, examiners should have been registered as Physician specialists, with the Health Professions Council of South Africa, for at least 5 years

  Other criteria: Examiners should hold an academic appointment, either part-time or fulltime and be listed on a panel of examiners which has been approved by the Council of the College of Physicians, and which has to be revised at least once every three years

- Cases should ideally be allocated randomly while maintaining a good spread of cases from the different systems for each candidate.
- Patients that participate in the examinations should be encouraged to speak freely and not be asked to withhold information from the candidates
- Each examiner's file should contain the Marking Guide for Clinical Cases.
- Candidates should be distributed to hospitals other than their base hospital.
- The appointment of observers is to be encouraged to increase the pool of examiners.
- Examiners meetings should be held at the end of each day's clinical examination to review the marks.
- The convenor should provide copies of the objective test (with answers) to the examiners for review prior to the final meeting.
- A final meeting should be held at the end of the examination to review the marks, discuss borderline cases, to receive reports on the different components of the examination, and to recommend worthy candidates for medal awards.
- The convenor should provide a report on the conduct and outcome of the examination to the President of the College of Physicians.
- Convenor (or representative) is to be present at the Senate ratification meeting.
- All documents containing questions or model answers must be password protected.

NB: Please consult the Regulations of the College of Physicians for further information

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FCP(SA) PART I **B - Moderator's Checklist for MCQ**			
1.	Are questions based on prescribed curriculum and learning resources?	Yes	No
	Comments:		
2.	Does the selection of questions attempt to cover most or all of the disciplinary domains outlined in the core curriculum and blueprint?	Yes	No
	Comments:		
3.	Are the questions succinct, unambiguous, grammatically correct and spelt correctly?	Yes	No
	Comments:		
4.	Has the paper been peer-reviewed and moderated by external examiners?	Yes	No
	Comments:		
5.	Concluding Remarks:		
	Name of Moderator (please print):		
	Signature of Moderator:		
	Date:		

FCP(SA) PART II **A - Moderator's Checklist for Objective Test**			
1.	Are questions based on prescribed curriculum?	Yes	No
	Comments:		
2.	Does the selection of questions attempt to cover most or all of the disciplinary domains outlined in the core curriculum and blueprint?	Yes	No
	Comments:		
3.	Are the questions succinct, unambiguous, grammatically correct, and spelt correctly?	Yes	No
	Comments:		
4.	Are questions worded such that short answers only are required?	Yes	No
	Comments:		
5.	Are the reproductions of good quality?	Yes	No
	Comments:		
6.	Is the length of the paper appropriate for the allotted time?	Yes	No
	Comments:		

7.	Is the allocation of marks appropriate to each question?	Yes	No
	Comments:		
8.	Has the paper been peer-reviewed and moderated by external examiners?	Yes	No
	Comments:		
9.	Is the marking of questions fair and correct?	Yes	No
	Comments:		
10.	Conclusion:		
	Name of Moderator (please print):		
	Signature of Moderator:		
	Date:		

FCP(SA) PART II **C - Moderator's Checklist for Clinicals**				
Organisation				
1.	Is the selection of cases appropriate?		Yes	No
	Comments:			
2.	Are the case notes of good quality and presented in standardised format?		Yes	No
	Comments:			
3.	Do the examiners' files contain the marking guide for clinical cases?		Yes	No
	Comments:			
4.	Are the following readily available?			
	a)	bedside equipment	Yes	No
	b)	bedletters and investigations	Yes	No
	c)	X-ray viewing facilities	Yes	No
	d)	invigilators to assist examiners	Yes	No
	e)	translators where needed	Yes	No
	Comments:			
5.	Has a comprehensive timetable for candidates and examiners been prepared?		Yes	No
	Comments:			

Conduct			
1.	Have candidates been directed to the specific system for examination in the short cases?	Yes	No
	Comments:		
2.	Have examiners spent ± 5 minutes corroborating the clinical features prior to examining candidates?	Yes	No
	Comments:		
3.	Have examiners kept to the allotted time for the long and short cases?	Yes	No
	Comments:		
4.	Are the questions posed by examiners appropriate for the level of a specialist general physician?	Yes	No
	Comments:		
5.	Did examiners use the marking guide to arrive at a mark for each candidate?	Yes	NO
	Comments:		
6.	Was the mark given a fair reflection of the candidate's performance?	Yes	No
	Comments:		

7.	Was a meeting held at the end of each day's examinations to review the marks allocated to candidates	Yes	No
	Comments:		
8.	Was a final examiners' meeting held to comprehensively review each candidate's performance and arrive at a final mark?	Yes	No
	Comments:		
9.	Was due deliberation carried out in the case of candidates who failed?	Yes	No
	Comments:		
10.	Concluding remarks:		
	Name of Moderator (please print):		
	Signature of Moderator:		
	Date:		

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A P P E N D I X D

Marking Schema for the Part II written examinations

Three papers will be written – a 3 hour Objective test (OT) and 2 x 3 hour Multiple Choice Papers (MCQ) The MCQs constitute a single paper and will be marked as such.

Final pass mark

1. Both the MCQ and the OT need to be passed individually. The subminimum mark for these papers is set at their respective pass marks (see details of each paper's pass mark calculation below) minus one Standard Error of Measurement (SEM). A candidate who scores less than the subminimum for either the OT or MCQ, will fail the written examination.
2. The written examination needs to be passed overall. The marks of the two tests will each be calibrated to a 50% pass mark and the mean of the two tests calculated. A passing score constitutes 50% or above.

Pass mark calculations

The pass mark for the OT will be determined using Cohen's method of standard setting (See CMSA website for details). Using this method the pass mark is determined as 65% of the 95th percentile of the scores achieved by candidates sitting the examination.

The MCQ paper (of 150 questions) will first undergo *post hoc analysis*. MCQ test questions which perform poorly from a psychometric perspective, will be removed from the results analysis before the pass mark is calculated. These are test items with a Discrimination Index of zero or less and a Proportion Correct (facility) value of less than 25% (for the best of 4 options Part II MCQ test). The final paper will then be marked out of the remaining good quality questions.

The correction for guessing strategy used in the MCQ incorporates the Cohen method as a way to determine the difficulty of the paper, and from which the pass mark for each MCQ paper is calculated (See appendix). The College of Physicians expects passing candidates to have at least 65% knowledge of the syllabus,
as measured by the different MCQ papers, after correction for guessing and difficulty of the paper are accounted for

Correction for guessing for MCQ examinations

The MCQ papers used in both the FCP(SA) Part I and II are subject to "correction for guessing" (CFG). CFG differs from negative marking (or formula scoring) in that no marks are deducted from an individual candidate's score if s/he provides a wrong answer to an MCQ item. Candidates are therefore encouraged to answer **all items** in the test. However, the effect of guessing is one of the aspects incorporated into the formula which is used to calculate the pass mark for the paper. The formula is derived from p.157 of the 2010 Cohen method publication by Cohen-Schotanus and van der Vleuten, which is available on the College of Physicians (SA) web page on the CMSA website. A brief explanation of the formula and its application is provided here.

The pass mark for the MCQ papers incorporates the effects of **guessing**, **difficulty** of the test and **expected knowledge** of the candidates. It is calculated with the following formula:

PM (%) = G% + K x (D - G)% where:

- **PM** = pass mark of the paper in %
- **G** = reflects the statistical mean **GUESSING %** a candidate <u>with no knowledge</u> would achieve on the test. It is calculated as 1/(number of items per option). Eg if 5 options per MCQ item = 1/5 = 20%
- **K** = reflects the minimum **KNOWLEDGE level** expected for a just-passing candidate <u>after</u> correction for guessing and controlling for the difficulty of the paper, expressed between 0-1. The College of Physicians expects its passing candidates to have <u>at least 65% knowledge</u> of the content under assessment <u>after correction for guessing and controlling for difficulty</u>. Hence, the number we use in the formula is **0.65**.
- **D** = this reflects the **DIFFICULTY** of the test as benchmarked by the 95th percentile point (in %) of the performance data of the candidates sitting the test.

For the other…/

For the other **non-MCQ papers** the same formula is used to calculate the pass mark, but since there is no effect of guessing the formula becomes:

PM (%) = G% + K x (D - G)%
= 0 +K x (D – 0)%
= K x D
= 0.65 x 95th percentile point (%)

MCQ example: The FCP(SA) Part I MCQ paper has 150 items of best-of-5 option format. The candidates write the paper and the number of correct answers per candidate is scored (no negative marking used). Their raw 'number correct' scores out of 150 possible marks (1 mark per MCQ item) are converted to a rounded % mark. Let us say the 95th percentile mark was 82.0% for this test. The College of Physicians expects 65% knowledge of its passing candidates, after correction for guessing and controlling for the difficulty of the paper. The pass mark for this particular MCQ paper is then calculated by using the above described formula as follows:

PM (%) = G% + K x (D - G)%
= 20 + 0.65 x (82.0 – 20)
= 20 + 0.65 x (62)
= 20 + 40.3
= 60.3
= 60 (rounded)

Non-MCQ example: The FCP(SA) Part II Objective Test paper has 30 constructed response items, each counting 6 marks. The candidates write the paper and their answer sheets are marked against a model answer. Their raw scores out of 180 possible marks are converted to a rounded % mark. Let us say the 95th percentile mark was 85.0% for this test. The College of Physicians expects 65% knowledge of its passing candidates after controlling for the difficulty of the paper. The pass mark for this particular Objective Test paper is then calculated by using the above described formula as follows:

PM (%) = K x D %
= 0.65 x 85%
= 55.25
= 55 (rounded)

Appeals process[5]

Candidates who are unsuccessful can lodge an appeal within the regulations stipulated by the CMSA

1. MCQ Papers
   The paper is remarked electronically. If the candidate requests to see the paper, he/she can compare his/her answers against the model answer sheet, but NOT be given the question paper. Viewing of the answer sheets can be done at the CMSA offices/designated venue under supervision
2. Objective Test
   The candidate receives a breakdown of his/her marks and will then know which questions were failed. He/she may then ask for these and other questions to be remarked. He/she will NOT be given the diagnosis/topic of the questions. Releasing this information comprises the integrity of future papers. The OT questions are banked for future use.
3. Clinical examination
   Candidates will be given a feedback on their performance, but there will no review of the clinical case or mark.
4. The feedback report
   Feedback reports will be sent to candidates who fail the written papers.

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[5] Effective from SS 2019