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JOHANNESBURG OFFICE
EXAMINATIONS & CREDENTIALS

**November 2022**

**THE COLLEGE OF PAEDIATRICIANS OF SOUTH AFRICA**

# R E G U L A T I O N S

**FOR ADMISSION TO THE EXAMINATION FOR THE POST-SPECIALISATION**

# SUB-SPECIALTY CERTIFICATE

**IN**

# INFECTIOUS DISEASES

**Cert ID(SA) Paed**

## 1.0 BACKGROUND

1.1 Globally, infectious diseases constitute the single largest burden of illness afflicting mankind, especially in poorer regions of the world. The impact and future of the HIV/AIDS and tuberculosis pandemics, antimicrobial resistance and of novel, emerging and re-emerging infectious diseases necessitates the training of infectious diseases (ID) experts for the continent

1.2 This document includes the training programmes designed to produce competent ID sub-specialists with expertise in clinical infectious diseases and microbiology/virology

1.3 Their training will combine clinical experience in infectious diseases medicine with laboratory training in microbiology and virology, and will provide exposure to principles of communicable diseases epidemiology, infection prevention and control, and public health. The ID sub-specialists will have true expertise in all aspects of diagnosis and management of organ, organ system and organism-specific infections as well as the One Health approach to health care.

1.4 Infectious Diseases is an integrative clinical sub-speciality that draws upon not only all of the elements of general paediatrics, but also has relevance to all fields of medicine and surgery. It is integrally involved with the microbiology and epidemiology of infectious diseases. The ID subspecialist is a uniquely trained clinician fully capable of providing effective, ambulatory-based medicine and hospital-based clinical consultation and management. Furthermore, with thorough knowledge in infectious diseases epidemiology these ID specialists will be able to interact effectively with public health colleagues in such critical areas as HIV/AIDS, primary care education and training for general practitioners, and communicable disease outbreak investigation and control. Finally, trained ID subspecialists will also be able to perform invaluable roles in both the public and private sectors in hospital epidemiology/infection prevention and control, as well as rational antimicrobial utilisation

2.0…/

## 2.0 ELIGIBILITY

2.1 Entry is via Paediatrics or Pathology (Clinical Microbiology or Virology)

2.2 **Grandfather Clause (expired):**

There are a number of paediatricians and microbiologists/virologists with sufficient experience to register:

2.2.1 Specialist Physicians/Paediatricians trained in an appropriate Infectious Diseases Unit either in South Africa or elsewhere. A sub-committee of the Health Professions Council of South Africa (HPCSA) will decide on registration

2.2.2 Microbiologists/Virologists, due to their experience in the clinical practice of ID. These candidates must provide evidence of their clinical experience in ID to be considered for registration. A sub-committee of the HPCSA will decide on registration with appropriate input from a committee of the Infectious Diseases Society of Southern Africa, if requested by the HPCSA

## 3.0 TRAINING REQUIREMENTS

3.1 **Scope and duration:**

3.1.1 For **Paediatricians,** an additional two-year training is required comprising 6 months in the laboratory and 18 months in clinical ID work. The laboratory time need not be continuous

3.1.2 For Specialists in Clinical Microbiology/Virology, an additional two-year training in clinical ID is required. This must be preceded by a year of general paediatric training in a recognised training institution at any time after internship

3.1.3 Training is valid for a period of three years from the date of completion in a numbered subspecialty training post. Candidates who do not successfully complete the subspecialty examination within the period must motivate with support from their HOD to the College of Paediatricians for a once off extension.

3.1.4 Presentation or acceptance for presentation of an original first author research poster or paper at a local or international congress OR submission or acceptance for publication of an original first or co-authored manuscript in a peer reviewed journal.

3.2 **Overview of training requirements:**

Clinical ID training must include paediatric in-patient and ambulatory care. Patient care must include both consultation and "hands-on" management. "Hands-on" management includes history-taking, physical examination, appropriate imaging and laboratory tests and appropriate bed-side investigations. The specialist will be able to prescribe and monitor antimicrobial therapy and should have sufficient insight into other forms of medical therapy such as immunosuppression. Practical experience in hospital infection prevention and control must form an integral part of ID training. For paediatricians, laboratory training includes clinical microbiology and virology. There will be an emphasis on research and scholarly activities.

3.2.1 Training goals include:

- The primary goal of the ID training is to educate and train competent, caring, and compassionate ID sub-specialists who will provide quality care to patients
- ID sub-specialists must have a thorough knowledge of clinical microbiology and virology
- Ability to play a leadership role in hospital infection prevention and control, and antimicrobial policy formulation
- Insight into the principles and practice of communicable diseases epidemiology and control
- Trainees will be required to develop teaching and communication skills relevant to all levels of health care
- Trainees will be required to exhibit competence in research
- Critical appraisal of relevant scientific literature

3.3…/

3.3 **Programme Content:**

3.3.1 ***Trainees with Paediatrics as base Specialty:***

3.3.1.1 **Laboratory Microbiology and Virology (6 months):**

Provided by approved diagnostic microbiology/virology laboratories, with the goal of providing core and specialised knowledge in medical microbiology and virology. Trainees will become adept at critically interpreting laboratory data

3.3.1.1.1 **Requirements:**

- Microbiology, including serology/ immunology of up to 4 months (minimum 3 months) and virology of up to 3 months (minimum 2 months)
- During this rotation, the trainee will also be exposed to mycology, parasitology, epidemiology, hospital infection prevention and control

3.3.1.2 **Clinical Infectious Diseases (18 months):**

The programme will provide training in paediatric infectious diseases in both in-patient and ambulatory settings. Clinical ID training will include consulting service at the accredited hospital(s) as well as "hands-on" management covering a wide variety of infectious diseases, under the guidance of ID faculty. Ambulatory care of patients with HIV/AIDS will be emphasised by active participation in the longitudinal care of these individuals

3.3.1.3 **Research and other academic activities:**

3.3.1.3.1 Participation in one or more research projects in infectious diseases should be encouraged

3.3.1.3.2 Publication of case reports, case series and research projects will be encouraged

3.3.1.3.3 Competence in the critical appraisal of scientific literature will be evaluated through journal club presentations, for example:

- Trainees will be required to participate in departmental meetings, presentations and teaching, and should be encouraged to attend conferences

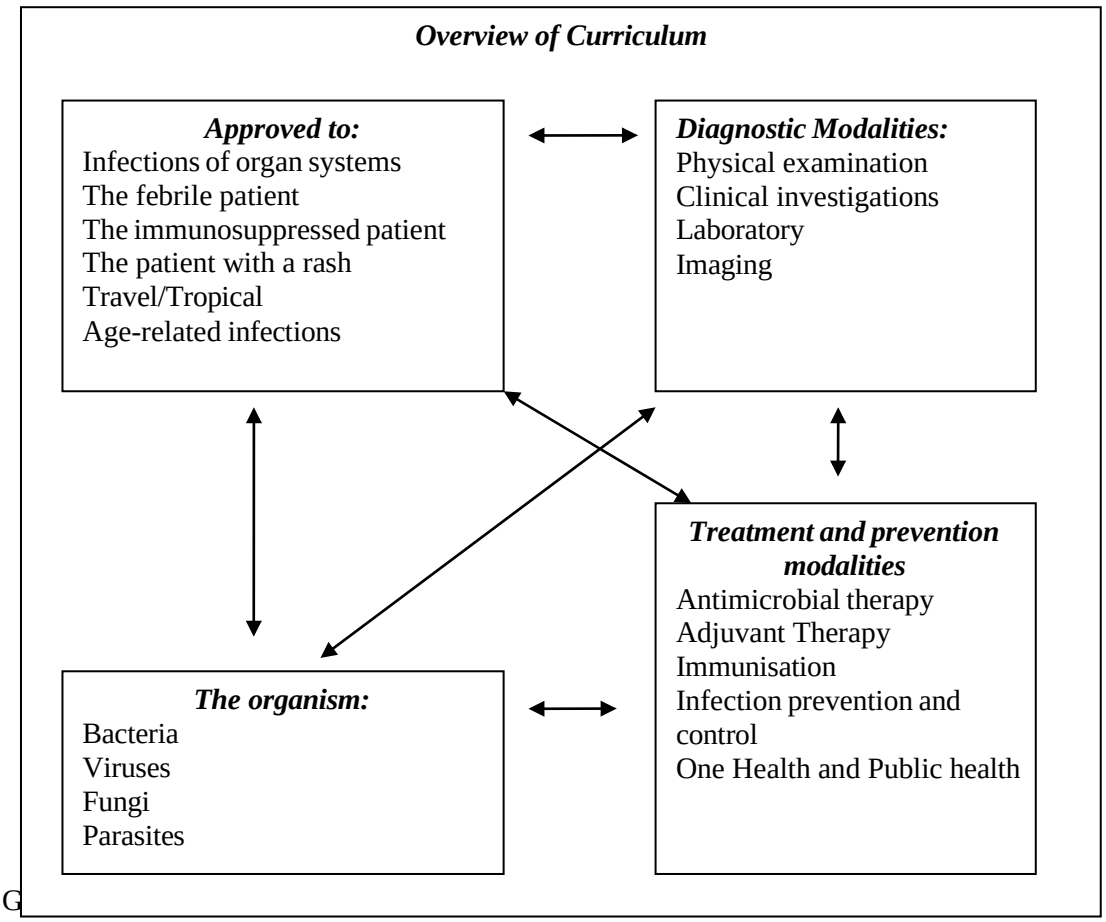
3.3.2 **Trainees with Microbiology/Virology as base speciality:**

***Note:***

- In view of the predominantly laboratory-based professional backgrounds, the candidates require adequate clinical experience and competence. ID training must be preceded by a year of Paediatrics experience in a recognised post internship training position
- Trainees should state their intent to follow a Paediatric focus, at the start of their training:
  - Clinical Infectious Disease (2 years) See 3.3.1.2
  - Research and other activities: See 3.3.1.3

3.4.../

3.4 **Overview of Curriculum:**

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**4.0 EVALUATION**

4.1 **Portfolio:**

4.1.1 Each candidate should maintain a portfolio, documenting the following:

- Details of cases managed
- Case presentations
  - by the candidate
  - case presentations attended
- Laboratory experience
  - hours spent in each section
  - techniques and experience gained
- "Elective" experience e.g., Immunology

4.1.2 Continuing in-course evaluation and feedback, (i.e. mentorship) is recommended. Review of portfolio at least every 3 months by Head of Department/Unit

4.2 **Exit examination:**[1]

Prior to an exit evaluation of professional competence, each candidate's portfolio needs approval by the Head of the Infectious Diseases Unit. A letter of approval should be submitted to the CMSA

4.2.1 Final evaluation of professional competence must include:

- A written examination comprising 2 x 3-hour papers incorporating clinical and laboratory components that include the recognition of clinical manifestations of infections, principles of laboratory tests, interpretation of the results of special investigations, pathogen recognition and interpretation of laboratory results, and management of infections.
    - Paper 1: A combination of scenario-based questions (may contain sub-parts) and short-answer type questions
    - Paper 2: OSCE-type questions including short cases, clinical, radiological, laboratory and other relevant images and content.
- An oral examination (1-hour). The oral includes evaluation of the candidate's approach to clinical problems and questions that are addressed by practicing paediatric infectious diseases sub-specialists.
- Review of the case portfolio will also form part of the evaluation
- Assessment of ability to perform research or at least to assess and appropriately evaluate research data and scientific articles
- This examination will be held under the auspices of CMSA

**JOHANNESBURG**
**November 2022**

[1] Format changes from February 2018 Regulation

# A P P E N D I X A

## 1.0 CLINICAL ID TRAINING IN PAEDIATRICS:

1.1 This list is not exhaustive or complete

Topics include all the major infections affecting children from "in-utero" exposure, through the neonatal period, infancy, childhood and adolescence. An understanding of the infections as they affect specific organ systems (e.g., respiratory, urinary etc.) as well as the diseases related to specific pathogens (e.g., staphylococcal infections) is implicit. The basic sciences around these infections must be understood (e.g., immunology infections, pharmacology etc.). Specific topics important for the Paediatric Infectious Diseases specialist include:

- The development of immunity
- Immunocompromised children (including congenital immunodeficiencies) and their associated infections
    - Congenital infections – transplacental and ascending
- HIV/AIDS:
    - vertical transmission and its prevention
    - horizontal transmission
    - the virus
    - the disease spectrum and appropriate management
- Neonatal infections
- Nosocomial infections in the nursery, ICU and wards
- The exanthems of childhood
- Other treatment modalities in infections:
    - probiotics
    - gamma-globulins
    - exchange transfusions etc.
- "Para-infectious" diseases:
    - necrotising enterocolitis
    - Reye's syndrome
    - Kawasaki disease etc.
- Diseases which mimic infections in children:
    - malignancy
    - toxins
    - auto immune etc
- Sexually transmitted infections in abused children and adolescents

1.2
- The following aspects should also receive attention:
    - Epidemiology
    - Clinical presentation
    - Pathophysiology
    - Microbiology
    - Virology
    - Differential diagnosis
    - Investigations
    - Management
    - Drug interactions
    - Sepsis syndrome
- Other treatment modalities in infections:
    - probiotics
    - gamma-globulins
    - exchange transfusion
- Diseases of organ systems
- Immunocompromised patients:
    - primary
    - secondary

- HIV
- Tuberculosis and other mycobacteria
- Fungal infections
- Nosocomial and health care related infections
- Diseases often mimicking and/or predisposing to infections:
  - auto-immune diseases
  - malignancies
- Immunisations
- Zoonoses
- Geohelminth and other parasitic infestations
- Travel-related infections
- Tropical infections
- Scenarios:
  - fever of unknown origin
  - recurrent infection
  - eosinophilia
  - antimicrobial and antiviral resistance
  - exanthemas – measles, chickenpox etc
- Infections related to trauma including burns and human or animal bites
- Antimicrobials:
  - drugs
  - pharmacology
  - toxicity

# A P P E ND I X B

## 1.0 LABORATORY TRAINING:

### 1.1 General Outline:

1.1.1 ***Objectives:***

During the 6 months training, the ID subspeciality trainee, should develop:

- Specialised factual knowledge of the natural history of those diseases upon which the discipline of clinical microbiology and infectious diseases is based
- Interpretative skills so that a clinically useful opinion can be derived from laboratory data
- Technical knowledge gained from close acquaintance with laboratory technology, so that methodology appropriate to a clinical problem can be chosen, and so that quality control and quality assurance procedures can be implemented
- Research and development experience:
  - original thought and critical assessment of published work are important to allow the trainee to contribute to a team, and individually, to development of the service
- The long-life habits of reading, literature-searches, consultation with colleagues, attendance at scientific meetings, and the presentation of scientific work as part of continuing medical education (CME)
- Data management skills to evaluate information derived from the population served and from the technical procedures applied in the laboratory. These skills include familiarity with IT and the use of spreadsheets, databases, and statistical packages, etc
- Management and communication skills:
  - the trainee must gain experience, under supervision, in planning departmental policies and develop the leadership skills necessary to implement them
- Familiarity with health and safety requirements for laboratories

### 1.2 Core curriculum:

This document sets out a curriculum, which covers the scientific base of clinical microbiology, as well as applied aspects of the subjects, including related fields such as infectious diseases, hospital epidemiology, and communicable diseases control

### 1.3 Training programme:

1.3.1 ID subspeciality trainees should understand the principles of the following, together with how they may be applied and research problems:

- Microbial structure, physiology, and genetics
- Microbial taxonomy, classification and typing methods
- Host defence mechanisms, the immune system and immunity to infection
- Microbial pathogenicity
- Epidemiology of infectious diseases – their surveillance and control
- Antimicrobial agents, their mode of action and mechanisms of microbial resistance

### 1.4 Laboratory safety:

1.4.1 Prior to any 'hands on' experience of laboratory work, the ID subspeciality trainee should be instructed in basic safety requirements including correct laboratory dress and laboratory hygiene. Instruction should also be given on the immediate handling and disposal of specimens and contaminated articles (e.g., inoculating loops, pipettes) at the laboratory bench, the dangers of aerosols and the procedure for dealing with spillages. At the end of formal training, the ID subspeciality trainee should be knowledgeable of:

- Local procedures for the safe transport of specimens or cultures and also with national and international postal and packaging regulations for such material
- Current knowledge of the regulations for hazardous biological agents
- The principles and operation of microbiological safety cabinets and the procedures for their decontamination and monitoring of air flow
- Infection control in the laboratory

1.5 **Sterilisation and disinfection:**

The trainee should understand the principles and uses of sterilisation and disinfection procedures and familiarity with microbiological waste disposal. ID subspeciality trainees should be familiar with methods of monitoring and be capable of guidance and disinfection in the laboratory, hospital or community

1.6 **Handling of specimens:**

1.6.1 At the end of formal training, the ID subspeciality trainee should:

- Be aware, for each specimen type, of the optimal methods for collection, transport (including transport media), storage, reception, identification and documentation, including the requirements for high-risk specimens. He/she should develop a sense of the continuity of identification of specimens from collection, through culture and further testing to the issuing of a final report. He/she needs to be aware of critical points in processing where the continuity may fail and be able to minimise the risk of this
- Be able to assess degrees of urgency for the processing of specimens, including the provision for an out of hours service and the communication of preliminary results as applicable
- Be able to decide upon further testing or processing of a specimen as appropriate
- Be aware of existing reference facilities and their appropriate use

1.7 **Microscopy:**

- Understand the principles of light, phase-contrast, fluorescent and electron microscopy and be able to set up a light microscope
- Be able to perform routine staining techniques including fluorescent dyes
- Be familiar with the appearance of stained preparations and be able to recognise artifacts and their possible origin

1.8 **Culture methods:**

- Have a basic understanding of the diversity of microbial metabolism
- Be aware of the wide range of selective, enrichments and inhibitory media available for general and specialised use
- Be familiar with physical growth requirements of micro-organisms including atmosphere and optimal temperature and have an appreciation of the growth kinetics of both solid phase and broth cultures. Know those micro-organisms and clinical situations in which detectable growth may require prolonged incubations
- Be able to process all common specimens, recognise potential pathogens from a mixture of colonies on culture plates, separate such colonies in order to achieve the growth necessary for further work

1.9 **Further processing of cultures:**

- Be aware of tests leading to the identification of all common pathogens including commercially produced kits (eg kits for enzyme assays) and rapid diagnostic kits, ELISA, latex agglutination
- Be aware of available reference facilities for further identification including serotyping and all other typing schemes both phenotypic and genotypic

1.10 **Antimicrobial investigations:**

- Be able to interpret the antibiotic sensitivities of an isolate using the common techniques
- Be able to interpret MIC and MBC tests as appropriate
- Understand antimicrobial assays and their relationship to the therapeutic and toxic effects on a patient and be able to advise on dosage regimens accordingly

1.11 **Molecular technologies:**

- Be aware of all major molecular technologies available in nucleic acid-based (molecular) techniques (eg RFLPs, hybridisation, macrorestriction analysis, LAMP, LCR, PCR and variations based on PCR)

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1.12 **Data handling:**

- Have a basic understanding of information technology and in particular, computerised data handling. He/she should have an appreciation of the advantages and disadvantages of such systems and a basic understanding of the need for data protection and the Data Protection Act; and
- Be aware of available technologies for data broadcasting (e.g., EPINET)

1.13 **Infection prevention and control in Hospital and Community Health:**

- Have had first-hand experience of local infection control problems, including, outbreaks of infection and their management
- Be familiar with the workings of infection control meetings including local and regional infection control committees
- Be aware of those areas of hospital and community health that require infection control policies
- Have worked closely with the infection control nurse both in day-to-day duties and in the education of those involved with infection control issues
- Have participated in visits to clinical and non-clinical areas to advice on infection control. These should include kitchen inspections especially those conducted by environmental health officers. Relationship should be developed with key personnel in the CSSD, pharmacy and laundry
- Understand the principles of patient isolation and their application
- Have insight into public health microbiology
- Have had some experience of communicable disease control in the community working with a CDC and Environmental Health Officers

1.14 **Virology:**

- Basic diagnostic virology methodology
- Interpretation of results, for both clinical and infection control purposes
- Virology policies in relation to health care workers, pregnancy, transplantation and immunisation
- When to refer to or request specialist virological expertise

1.15 **Immunology:**

- Work-up of suspected immunodeficiencies
- Interpretation of laboratory tests for major immunodeficiencies

# A P P E N D I X C

## 1.0 FORMAT AND CONDUCT OF THE EXAMINATION

### 1.1 Evaluation of Competence

1.1.1 ***Evaluation of overall competence of the trainee will be based on:***

a) an appraisal by the Head of Unit/Division/Department of the institution where training was undertaken

b) an examination under the auspices of the Colleges of Medicine of South Africa (CMSA).

## 2.0 PORTFOLIO

2.1 A portfolio/logbook is a mandatory requirement for entry to the examination.

2.2 The portfolio for the sub-specialty is attached (Appendix D).

2.3 The portfolio includes six-monthly formative assessments (as a minimum) made by the supervisor/divisional head, which is be signed by both candidate and trainer. These assessments should, however, be kept confidential and should not be submitted to the CMSA.

2.4 Each candidate will be expected to submit their portfolio/logbook to the CMSA by 15 January or 15 June of each year (for the relevant March or August examination).

2.5 Portfolios are viewed by the HOD, and satisfactory performance must be indicated in their letter to the CMSA

## 3.0 EXAMINATION CONVENORS

3.1 A list of potential convenors will be requested from appropriate individuals, group or society at the College of Paediatricians' (hereafter referred to as the "College") discretion.

3.2 The College will select convenors for each examination.

3.3 In the case of a convenor from each examining centre not being represented on the convenors' list submitted by a group or society, the College Council may at its discretion appoint a convenor from another centre for a particular examination.

## 4.0 CONVENOR RESPONSIBILITIES

**The Convenor will:**

4.1 Recommend an examiner's panel from the approved list of examiners supplied by the College.

4.2 Be sensitive to the following issues in selecting examiners:

4.2.1 Rotation of examiners (representation from different centres)

4.2.2 Exposure of junior sub-specialists (new examiners)

4.2.3 Representation from different centres in South Africa (must have representation from three different centres, except in exceptional circumstances)

4.2.4 The CMSA's transformation goals.

4.3 Forward the recommended examiners'panel to the College for approval

4.4 Recommend a moderator for the examination to the College.

4.5 Forward a copy of the draft written paper to the College for review by the moderator.

4.6 Submit a written report to the College Council after each examination outlining the conduct of the examination, marks achieved, success rates, problems identified and recommendations for future examinations. This report will also be sent to the Head of each training centre and the CMSA Examinations office.

## 5.0 EXAMINER SELECTION

5.1 Examiners will be appointed by the College following recommendation by the convenor.

5.2 A Certificate examiner must be registered with the Health Professional Council of South Africa (HPCSA) as a sub-specialist and should be at least two years post his or her certification examination or registration as a sub-specialist.

5.3 Use of a non-specialist examiner or one from an allied subspecialty must be motivated for in writing to the College.

5.4 The examination panel will consist of three examiners, including the convenor. This number of examiners is considered fair to the needs of the candidate and the CMSA.

5.5 Any request to alter the examiner numbers for an individual examination must be motivated in writing to the College.

5.6 The written and oral examinations will be conducted by the same set of examiners.

5.7 An examiner will not necessarily be excluded if he/she is the trainer/supervisor of the candidate.

5.8 Ideally, no more than one examiner will be chosen from any single centre in South Africa for each examination.

5.9 The selection of Certificate examiners will be independent of the FC Paed(SA) Part II examiner selection process.

5.10 Whenever possible the same examiner should not be involved in a Certificate examination and a FC Paed(SA) Part II examination simultaneously.

5.11 The CMSA Academic Office will be responsible for notifying examiners about their selection for an individual examination.

## 6.0 MODERATORS

6.1 To adhere to CMSA standards and for quality assurance, a process of 'moderation' of each examination is considered necessary.

6.2 A moderator shall be appointed by the College for the Certificate examination. This individual will ideally be a senior member of the sub-specialty.

6.3 Prior to the conduct of the written examination, the moderator will check that the examination questions and marking memorandum reflect a fair spread of the curriculum (reliability), match the curriculum (validity), and that the mark allocation of the questions is fair and appropriate.

6.4 The moderator will complete a report and return this to the College and the CMSA at the end of each examination. The College will formally review the report.

## 7.0 STRUCTURE OF THE EXAMINATION

7.1 The Certificate examination has two components:

a) A written component
b) An oral component.

7.2 The written component contributes 60% to the overall mark (each of the two written papers counts 30% of the overall mark) and the oral component contributes 40% to the overall mark.

7.3 The pass mark for the overall exam is 50%.

7.4 A sub-minimum pass mark of 40% is expected for the written component of the examination to proceed to the oral examination.

7.5 There are no sub-minima for individual papers, questions, or sub-sections of the oral examination.

## 8.0 EXAMINATION CENTRE

8.1 Ideally the centre/region hosting the FC Paed (SA) Part II examination will be the host centre for each Certificate examination.

8.2 The Convenor of the examination will preferably, but not necessarily, originate from that centre/region.

8.3 Exceptions may be granted where there is no suitable Convenor based at that centre/region or the sole candidate in an examination is from the host centre.

## 9.0 WRITTEN EXAMINATION

9.1 Certificate examinations will comprise of two three-hour written papers incorporating clinical and laboratory components that include the recognition of clinical manifestations of infections, principles of laboratory tests, interpretation of the results of special investigations, pathogen recognition and interpretation of laboratory results, and management of infections.
Paper 1 (100 marks): a combination of scenario-based questions (may contain sub-parts) and short-answer type questions.
Paper 2 (100 marks): OSCE-type questions including short cases, clinical, radiological, laboratory, and other relevant images and content.

9.2 A marking memorandum – a basic outline to the expected answer - will be provided, by each examiner at the time of question acceptance, including an indication of the allocation of marks for each section/part answer.

9.3 The language of written papers will follow College recommendations.

## 10.0 ORAL EXAMINATION[2]

10.1 One 60-minute oral (including portfolio review)

10.2 The examination will be structured, balanced and similar for each candidate.

10.3 The language of the oral examination will follow College recommendations.

## 11.0 TIMING OF ORAL EXAMINATION

11.1 The examination will be held in the same week as the FC Paed (SA) Part II clinical examination.

11.2 Exceptions will be by written motivation to the College.

## 12.0 RESPONSIBILITY OF THE COLLEGE IN THE EXAMINATION PROCESS

12.1 Selection of Convenors, examiners, and moderators.

12.2 Monitoring of the conduct of each Certificate examination.

12.3 Reviewing all aspects of each examination on completion.

12.4 Tracking performance and success rates in individual examinations.

## 13.0 APPEALS PROCESS

13.1 The CMSA has an appeals process that will be followed.

**JOHANNESBURG**
**November 2022**

[2] Format changes from February 2018 Regulations