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EXAMINATIONS & CREDENTIALS

FCD(SA) OMP Part I Blueprint

FORMAT OF THE PART I EXAMINATION

One written paper of 3 hours' duration on Anatomy, Embryology, Histology and Oral Biology
One written paper of 3 hours' duration on Physiology
One written paper of 3 hours' duration on the principles of Pathology including Microbiology

The papers will consist of MCQ's and short questions. All sections in the scope of the examination have equal value and the examinations may consist of questions on any of the topics.

SCOPE OF THE PART I EXAMINATION

1.0 ANATOMY, EMBRYOLOGY, HISTOLOGY, ORAL BIOLOGY

Recommended text book for Anatomy, Embryology, Histology, Oral Biology:

Fundamentals of Anatomy and Physiology
Martini, Nath, Bartholomew
11th Edition
Pearson.

1.1 ANATOMY:

1.1.1 **Head**:

Surface anatomy
Osteology of calvaria, especially base of skull and temporal region; upper mid and lower face, orbit, nasal cavity; mandible; individual bones of the skull
The scalp
Temporomandibular articulation
Muscles: of mastication, facial, of tongue, of palate
Contents of orbit
Nasal cavity and paranasal air sinuses
Pterygopalatal fossa, infratemporal fossa
Structures of the oral cavity: lips, cheeks, tongue, floor of mouth, palate, teeth, gingivae
Salivary glands
Ear, external and middle
Oropharynx
Blood vessels and nerves
Blood and nerve supplies, lymphatic drainage, relations, variations
Neurocranial contents
Brain stem
Cranial nerves
Major intracranial vessels and sinuses
Radiology anatomy of head

1.1.2 **Neck:**

Surface anatomy
Osteology of cervical vertebrae, hyoid
Muscles
Triangles of the neck, and contents
Larynx and trachea
Laryngopharynx and upper oesophagus
Thyroid and parathyroids
Blood vessels and nerves
Blood and nerve supplies, lymphatic drainage, relations
Radiological anatomy

1.1.3 **Thorax:**

Surface anatomy
Thoracic wall
Diaphragm, intercostal muscles and accessory muscles of respiration
Trachea, lungs, pleural cavities
Mediastinum including heart and great vessels, oesophagus
Blood and nerve supplies, lymphatic drainage, relations
Radiological anatomy

1.2 EMBRYOLOGY

1.2.1 **General knowledge:**

Early embryological events
Cardiovascular system
Respiratory system
Gastrointestinal system

1.2.2 **Detailed knowledge:**

Development of pharyngeal (branchial) arches
Pharyngeal arch derivatives
Development of pharyngeal pouches: middle ear, tonsil thymus, parathyroid, ultimobrachial body
Other pharyngeal derivatives especially thyroid
Development of face, jaws, oral and nasal cavities and paranasal sinuses, tongue and palate, salivary glands, pharynx
Development of blood and nerve supplies and muscles of the face of mastication and of the tongue
Development of teeth, including role of ectomesenchyme and determination of crown pattern
Development of periodontium
Tooth eruption
Osteogenesis, cementogenesis, amelogenesis, dentinogenesis
Development of temporomandibular joint
Development of cranium

1.3 HISTOLOGY

1.3.1 **General knowledge:**

Primary tissues: epithelia, connective tissues and blood, nerve tissue, muscle
Skin
Cardiovascular system
Respiratory tract
Endocrine system (especially thyroid, parathyroid, pituitary)
Lymphoreticular system

1.3.2 **Detailed knowledge:**

Tooth: enamel, cementum, dentine, pulp
Periodontium: junctional and sulcular epithelium, gingival fibre system, cementum, periodontal ligament, alveolar bone
Cheeks, lips, tongue, floor of mouth, palate
Salivary glands
Cartilage, bone, sutures
Striated muscle

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1.4 ORAL BIOLOGY

1.4.1 **Basic genetic mechanisms:** Nucleic acids, biosynthesis of protein; cell growth, division and control
Important development syndromes of head and neck and genetics of inheritance of major developmental abnormalities

1.4.2 **Differentiation and maintenance of tissues:** Cell turnover; permanent cells; renewal by duplication, stem cells, pluripotential cells

1.4.3 **Cellular ultrastructure:** Cell membrane and glycocalyx
Cilia, flagella, kinetosomes, microvilli and intercellular junctions
Cytoplasmic compartment, organelles, sites of metabolic activity
Nuclear compartment, envelope, chromatin and nucleolus
Cytoskeleton

1.4.4 **Cellular communication:** Transmembrane transport mechanisms
Chemical mediators, hormones, neurotransmitters, intracellular and surface receptors (steroids and peptides), target cell adaptation
Extracellular components: fibres, ground substance, attachment glycoproteins
Epithelium-mesenchymal interactions

1.4.5 **Oral epithelium:** Keratinocytes
Non-keratinocytes ("clear cells")
Intercellular junctions
Junctional epithelium and epithelial attachment
Patterns of epithelial differentiation and maturation
Permeability
Epithelium of "specialised" mucosae
Interface between oral epithelium and connective tissue/tooth

1.4.6 **Connective tissues of the oral mucosa and periodontium:**
The cells
The fibres
The ground substance
The blood and lymph vessels
The nerves
Regional differences and functions of oral mucosa
Mechanisms of tooth support
Gingival fluid
Ageing of oral tissues

2.0 PHYSIOLOGY

Recommended text book:
Human Physiology
From Cells to Systems
5th Edition
Sherwood (Thompson, Brooks/Cole)

2.1 **Basic cell functions:** Cell structure
Chemical composition of the body
Molecular control mechanisms - DNA and proteins
Energy and cellular metabolism
Movement of molecules across cell membranes

2.2 **Control systems:** Neural control mechanisms
Hormonal control mechanism
Muscle

2.3…/

2.3 **Co-ordinate body functions:** Circulation and blood
Respiration and blood
Regulation of water and electrolyte balance
Digestion and absorption of food
Defence mechanisms: immunology
Sensory systems
Body movement
Consciousness and behaviour

2.4 **Oral physiology:** Composition and functions of saliva
Swallowing and chewing
Oral sensation
Mineralisation of teeth and ossification
Hormonal and dietary influences on oral tissues
Growth

3.0 PRINCIPLES OF PATHOLOGY INCLUDING MICROBIOLOGY

Recommended text books:

Robbins Basic Pathology.
Robbins, Kumar, Cotran (Editors).
7th Edition
Philadephia, Pa., London, Saunders 2003.

Rippey JJ
Illustrated lecture notes General Pathology.
2nd Edition 1994.

3.1 **Cell injury and cell death:** Cell injury and necrosis;
Apoptosis;
Sub-cellular responses to cell injury;
Ionising radiation

3.2 **Adaptions, intracellular accumulations and cell ageing:**
Cellular adaptations of growth and differentiation;
Intracellular accumulations;
Pathologic calcification;
Hyaline change;
Cellular ageing;
Pigments

3.3 **Inflammation:** Acute inflammation;
Chronic inflammation;
Chemical mediators;
Morphologic patterns

3.4 **Infectious diseases:** Transmission and dissemination of microbes;
How microorganisms cause disease;
Immune evasion by microbes;
Spectrum of inflammatory responses to infection;
Acute pyogenic infections, wound infections and hospital infections;
Principles of disinfection and sterilisation;
Antibacterial chemical agents;
Opportunistic infections;
Hepatitis;
AIDS

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3.5	**Diseases of immunity:**	General features of the immune system; Disorders of the immune system (hypersensitivity reactions); Autoimmune diseases; Immunologic deficiency syndromes; Amyloidosis
3.6	**Genetic disorders:**	Mutations, Mendelian disorders; Disorders with multifactorial inheritance; Cytogenetic disorders; Molecular diagnosis; Diagnosis of genetic disorders
3.7	**Tissue repair:**	Control of normal cell growth; Extra cellular matrix and cell-matrix interactions; Repair by connective tissue (fibrosis); Wound healing
3.8	**Neoplasia:**	Characteristics of benign and malignant neoplasms; Epidemiology; Molecular basis of cancer; Biology of tumour growth; Carcinogenic agents and their cellular interactions; Host defence against tumours – tumour immunity; Clinical features of tumours
3.9	**Blood vessels:**	Vascular wall cells and their response to injury; Vascular diseases; Atherosclerosis; Hypertensive vascular disease; Aneurysms and dissection
3.10	**Haemodynamic disorders:**	Oedema; Hyperaemia and congestion; Haemorrhage; Haemostasis and thrombosis; Embolism; Infarction; Shock
3.11	**The heart:**	Heart failure ischaemic heart disease; Hypertensive heart disease; Valvular heart disease
3.12	**Diabetes:**	Classification and incidence; Pathogenesis; Morphology; Clinical features; Complications

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