For Candidates

Master of Medicine (Orthopaedic Surgery) Part 1 (VIVA) Examinations

Suggested/Sample Topics

2016
1. **ORTHOPAEDIC BIOMECHANICS & BASIC SCIENCES**

Biomechanics relevant to the musculoskeletal system. This would include the physical properties of the tissues we deal with (bone, cartilage, and implants for reconstructive surgery and fracture fixation), patterns of gait and limb movement and the effect of forces acting on the skeleton.

- Role of biomechanics in clinical practice
- Statics (free body diagrams)
- Kinematics
- Dynamics
- Materials used in orthopaedics and their mechanical properties/behaviour
- Biological response to biomaterials
- Behaviour of composite skeletal structures
- Fracture mechanics and osteosynthesis
- Kinesiology, gait analysis and tribology of joints
- Biomechanics of the Spine

2. **ORTHOPAEDICTISSUES AND PATHOPHYSIOLOGY/ PATHOANATOMY**

The pathology of common conditions including tumours, degenerative and inflammatory arthritis, metabolic bone disease and fracture healing.

- Cell Injury, inflammation and repair
- Bone – structure, function, injury, regeneration and repair
- Cartilage – structure, function, injury and repair
- Pathophysiology of inflammatory conditions of the joints
- Meniscus – structure, function, injury and repair
- Intervertebral disc – structure, function, injury and repair
- Tendon and ligaments – structure, function, injury and repair
- Nerve and muscle – structure, function, injury and repair
- Haemodynamic/vascular Disorders in orthopaedics
- Congenital and Hereditary Disorders
- Osteoporosis and metabolic disease
- Osteomyelitis and infective arthritis
- Osteoarthritis and inflammatory arthritis
- Bone tumours, benign and malignant
- Muscular atrophy, inflammatory myopathies, muscular dystrophy
- Soft tissue tumours, benign and malignant
3. ORTHOPAEDIC SURGICAL ANATOMY

A knowledge of surgical anatomy relevant to the practice of orthopaedic and trauma surgery covering the following areas:-

- Shoulder and Arm
- Elbow and Forearm
- Wrist and Hand
- Hip and Femur
- Knee and Leg
- Foot and Ankle
- Cervical Spine
- Thoracic Spine
- Lumbosacral Spine
- Pelvis and Acetabulum

4. ORTHOPAEDIC RADIOLOGY

The science of investigative techniques, including the principles of radiography and the effects of radiation on the skeleton, the physical basis of computerised tomography, ultrasound and magnetic resonance imaging.

- Imaging modalities in Orthopaedics
- MRI – The physics and applications
- Imaging the Spine
- Radiological imaging of benign and malignant tumours
- Imaging in Musculoskeletal infections
- Imaging in sports injuries( ultrasound, arthrogram, CT and MRI )
- Imaging in arthropathies
- Imaging in metabolic and miscellaneous conditions
- Fractures and classification – long bones
- Fractures and classification – periarticular
- Interventional radiology in orthopaedics
- Pitfalls in radiological diagnosis

The above provided is not exhaustive and only meant as a guide.