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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MS (ORTHOPAEDICS) DEGREE EXAMINATION – JANUARY 2025**  
**(REGULAR)**  
**PAPER I**

Tuesday, January 14, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Describe the gait cycle. Explain about Trendelenburg gait. Write a brief note on gait lab  
(8+4+3 = 15 marks)
  
2. Define osteoporosis. What are the causes of osteoporosis? How do you evaluate a patient with osteoporosis and describe the various treatment options available?  
(2+3+10 = 15 marks)
  
3. **Write a short Essay on:**
  - 3A. Biomechanics of Knee.
  - 3B. Calcium Metabolism.
  - 3C. Articular cartilage
  - 3D. Distraction histogenesis
  - 3E. Pin tract infection classification and management.
  - 3F. Discuss the etiopathology, diagnosis, prophylaxis and treatment of deep vein thrombosis.
  - 3G. Describe "JAIPUR FOOT". Discuss the difference with 'SACH FOOT' & MADRAS FOOT".
  - 3H. Describe free vascularized bone transplant. Discuss the principles of the technique and their applications
  - 3I. Stages of lumbar intervertebral disc prolapse
  - 3J. Histopathological types of osteosarcoma & their prognosis

(7 marks × 10 = 70 marks)



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**PAPER II**

Wednesday, January 15, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

☞ **Answer ALL the questions.**

☞ **Long Essays:**

1. Describe the blood supply of femoral head. Enlist various causes for non-union fracture neck of femur. Classify it based on Sandhu's classification? List the various muscle pedicle grafts described for treatment of this condition.

(4+3+4+4 = 15 marks)

2. What is reconstructive ladder for open fractures? What is negative wound therapy? What is fix & close protocol in open fractures?

(5+5+5 = 15 marks)

3. **Write short Essay on:**

- 3A. Supination external rotation injuries in ankle
- 3B. Fat embolism syndrome.
- 3C. Classifications of tibia plateau fractures.
- 3D. Radiological parameters in identifying acetabular fractures.
- 3E. Side swipe injuries of elbow.
- 3F. Massive transfusion protocol.
- 3G. Residual Limb.
- 3H. DCP Versus LCP.
- 3I. Rehabilitation for quadriplegics.
- 3J. Thoracolumbar burst fractures.

(7 marks × 10 = 70 marks)



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**PAPER III**

Thursday, January 16, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer All Questions:**

✍ **Long Essays:**

1. Write a note on stabilizers of shoulder joint. Describe the various clinical tests for evaluating rotator cuff pathologies. Mention different portals used in shoulder arthroscopy.  
(4+8+3 = 15 marks).
2. What is spondylolisthesis? Mention the classification, radiological features and management of isthmic spondylolisthesis?  
(3+4+4+4 = 15 marks)
3. **Write short essay on:**
  - 3A. Renal osteodystrophy (7 marks)
  - 3B. Surgical management for radial nerve palsy (7 marks)
  - 3C. Gross Motor Function Classification System of Cerebral Palsy. (7 marks)
  - 3D. Intrinsic minus hand. (7 marks)
  - 3E. Describe any five radiological features of developmental dysplasia of hip (DDH)? Role of arthrogram in DDH. (5+2 = 7 marks)
  - 3F. Write a note on arches of foot? Role of arthroereisis in pes planus. (3+4 = 7 marks)
  - 3G. Mention different types of periosteal reaction in bone tumours. List giant cell variants. (4+3 = 7 marks)
  - 3H. What are the clinical features of bone cement implantation syndrome? What are the precautions to prevent this condition? (3+4 = 7 marks)
  - 3I. Chondromalacia Patellae (7 marks)
  - 3J. Unicompartmental Knee Arthroplasty (7 marks)



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**PAPER IV**

Friday, January 17, 2025

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

**✍ Answer ALL the questions.**

**✍ Long Essays:**

1. Discuss femuro-acetabular impingement. What are the indications for hip arthroscopy? Write a note on portals in hip arthroscopy. (7+4+4 = 15 marks)

2. Discuss the evaluation and management of cartilage defects in the knee joint. (15 marks)

3. **Write short essay on:**

3A. Balloon kyphoplasty

3B. Surface treatment and coating of arthroplasty implants

3C. Tenosynovial giant cell tumours

3D. Robotic assisted TKA

3E. Autologous chondrocyte transplantation

3F. Denosumab

3G. THR in dysplastic hips

3H. Chronic ankle instability

3I. Hemi hamate arthroplasty

3J. Limb salvage techniques in malignant bone tumours

(7 marks × 10 = 70 marks)

