

Reg. No.

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MS (ORTHOPAEDICS) DEGREE EXAMINATION – MAY 2026**

**PAPER I**

Monday, May 18, 2026

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. **Short Essay Question.**

- 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**

Tuesday, May 19, 2026

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. **Short Essay Question.**

- 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**

Wednesday, May 20, 2026

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer All the Questions:**

✍ **Long Essays:**

1. What are sequelae of Tom Smith arthritis. Salient features of Choi classification. Write a note on pelvic support osteotomy.

(5+5+5 = 15 marks)

2. Describe the natural history of degenerative disc disease? Discuss the management of a prolapsed lumbar intervertebral disc at L4-L5 level.

(7+8 = 15 marks)

3. **Short Essay Question.**

3A. Synovial fluid analysis

3B. Chondrodiatasis

3C. High tibial osteotomy

3D. Intrinsic minus hand

3E. Management in Hallux valgus

3F. Classification and management of Kienbock's disease

3G. Traumatic Anterior Shoulder Instability

3H. Etiopathogenesis and Management of Paget's disease

3I. Conventional Intramedullary Osteosarcoma

3J. Hand in Rheumatoid arthritis

(7 marks × 10 = 70 marks)



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**PAPER IV**

Thursday, May 21, 2026

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Describe ligament balancing in total knee arthroplasty. Add a note on Whiteside's line. Add a note on tibial defects and their management.

(5+4+6 = 15 marks)

2. Describe the seronegative arthropathies. What are the relevant blood investigations and briefly mention their significance in diagnosis and follow-up of patients. What are the osteotomies of the spine in ankylosing spondylitis.

(5+4+6 = 15 marks)

3. **Short Essay Question.**

3A. Orthobiologics in young arthritic knee

3B. Teriparatide

3C. Meniscal Transplants

3D. Describe parts of a prosthesis. Add a note on lower limb terminal devices

3E. Vertebral body tethering

3F. Total Ankle Arthroplasty

3G. Radial head replacement

3H. Allograft in knee-ligament reconstruction

3I. Zone 2 Flexor tendon injuries

3J. MDR and XDR Tuberculosis

(7 marks × 10 = 70 marks)

