

Joints of Lower Limb: FAQs, MCQs and Viva Voce

? Frequently Asked Questions — Joints of Lower Limb

Hip Joint

1. What type of joint is the hip joint?

? Synovial **ball-and-socket** joint.

2. What is the strongest ligament of the hip?

? Iliofemoral ligament (Y-shaped ligament of Bigelow).

3. What prevents hyperextension at the hip?

? Iliofemoral ligament.

4. Which artery supplies the head of the femur in adults?

? **Medial circumflex femoral artery** (via retinacular branches).

5. Which nerve supplies the hip joint?

? Femoral, obturator, superior gluteal, and nerve to quadratus femoris.

6. What is the function of the ligament of the head of femur?

? Carries a small artery from the **obturator artery**; provides blood supply in children.

7. Why is posterior dislocation of hip common?

? The posterior capsule is **weak and thin**, unlike the anterior capsule.

8. What causes avascular necrosis of the femoral head?

? Damage to the **retinacular branches** of the medial circumflex femoral artery.

9. What is coxa vara?

? **Decreased** neck-shaft angle (<125°).

10. What is coxa valga?

? **Increased** neck-shaft angle (>135°).

Knee Joint

11. What type of joint is the knee?

? **Synovial condylar (modified hinge) joint.**

12. Which bones form the knee joint?

? **Femur, tibia, and patella.**

13. What is the function of the patella?

? Increases the **leverage of quadriceps femoris** and protects the knee.

14. Which ligament prevents forward displacement of tibia?

? **Anterior cruciate ligament (ACL).**

15. Which ligament prevents backward displacement of tibia?

? **Posterior cruciate ligament (PCL).**

16. Which meniscus is more frequently injured and why?

? **Medial meniscus** — attached to MCL, less mobile.

17. What is the “unhappy triad”?

? Injury to **ACL, MCL, and medial meniscus.**

18. What is the function of popliteus?

? **Unlocks the knee** by laterally rotating femur on tibia.

19. What is the locking mechanism of the knee?

? **Medial rotation of femur** during terminal extension.

20. What is the blood supply of the knee joint?

? **Genicular anastomosis** around the joint.

21. What is Housemaid’s knee?

? **Prepatellar bursitis.**

22. What is Clergyman’s knee?

? **Subcutaneous infrapatellar bursitis.**

Ankle Joint

23. What type of joint is the ankle?

? **Synovial hinge joint.**

24. What movements occur at the ankle?

? **Dorsiflexion and plantar flexion.**

25. What is the axis of movement of the ankle joint?

? **Transverse line joining tips of malleoli.**

26. Which position is the ankle joint most stable in?

? **Dorsiflexion** — the talus fits tightly into the tibiofibular mortise.

27. Which ligament prevents over-eversion?

? **Deltoid (medial) ligament.**

28. Which ligament prevents over-inversion?

? **Lateral ligament** (anterior talofibular, calcaneofibular, posterior talofibular).

29. What is Pott's fracture?

? **Fracture of both malleoli due to twisting injury (external rotation and eversion).**

Tibiofibular Joints

30. What type of joint is the superior tibiofibular joint?

? **Plane synovial joint.**

31. What type of joint is the inferior tibiofibular joint?

? **Syndesmosis (fibrous joint).**

32. What is the main stabilizing ligament of the inferior tibiofibular joint?

? **Interosseous tibiofibular ligament.**

33. What is a high ankle sprain?

? **Injury to the inferior tibiofibular syndesmosis.**

Foot Joints

34. What type of joint is the subtalar (talocalcanean) joint?

? **Plane synovial joint.**

- 35. What type of joint is the talocalcaneonavicular joint?**
? **Modified ball-and-socket joint.**
- 36. What type of joint is the calcaneocuboid joint?**
? **Saddle-type synovial joint.**
- 37. What is the spring ligament?**
? **Plantar calcaneonavicular ligament** — supports head of talus and medial arch.
- 38. What movements occur at subtalar and midtarsal joints?**
? **Inversion and eversion.**
- 39. Which muscles cause inversion?**
? **Tibialis anterior and tibialis posterior.**
- 40. Which muscles cause eversion?**
? **Peroneus longus, brevis, and tertius.**
- 41. What forms the transverse tarsal (midtarsal) joint?**
? **Talonavicular and calcaneocuboid joints.**
- 42. What type of joints are the metatarsophalangeal joints?**
? **Condyloid synovial joints.**
- 43. What type of joints are the interphalangeal joints?**
? **Hinge synovial joints.**
-

Arches and Support Mechanisms

- 44. What maintains the medial longitudinal arch?**
? **Spring ligament, tibialis posterior, plantar aponeurosis.**
- 45. What maintains the lateral longitudinal arch?**
? **Long and short plantar ligaments, peroneus longus and brevis.**
- 46. What maintains the transverse arch?**
? **Peroneus longus tendon and adductor hallucis (transverse head).**
- 47. What is pes planus?**
? **Flat foot** due to collapse of medial arch.
-

48. What is pes cavus?

? **High-arched foot** due to exaggerated longitudinal arch.

49. What is talipes equinovarus?

? **Clubfoot** — plantarflexed, inverted, and adducted foot.

Gait and Functional Questions

50. What is the stance phase of gait?

? Period when **foot is in contact with ground** (?60% of cycle).

51. What is the swing phase?

? Period when **foot is off the ground** (?40% of cycle).

52. What is Trendelenburg gait?

? Pelvic drop on opposite side due to **superior gluteal nerve palsy**.

53. What is foot drop?

? Inability to dorsiflex due to **deep peroneal nerve lesion**.

54. What is the key muscle for unlocking the knee?

? **Popliteus**.

55. Which joint contributes most to inversion and eversion?

? **Subtalar joint**.

56. What law describes joint innervation by nerves of acting muscles?

? **Hilton's Law**.

57. Which joint is responsible for dorsiflexion and plantar flexion?

? **Ankle joint**.

58. Which joint contributes to rotation of tibia during flexion?

? **Knee joint**.

59. What is the functional importance of locking of knee?

? Provides **stability in standing** with minimal muscular effort.

60. Which muscle is called "the key of the knee"?

? **Popliteus muscle**.

Summary of Clinical Correlations

- **ACL rupture:** Anterior drawer test positive.
- **PCL rupture:** Posterior drawer test positive.
- **Deltoid ligament injury:** Over-eversion strain.
- **Lateral ligament injury:** Over-inversion strain.
- **Plantar fasciitis:** Heel pain on first step.
- **Hallux valgus:** Lateral deviation of great toe with bunion.
- **Housemaid's knee:** Prepatellar bursitis.
- **Baker's cyst:** Posterior swelling in popliteal fossa.
- **Flat foot:** Collapsed medial arch.

? Multiple Choice Questions — Joints of Lower Limb

Hip Joint

1. The hip joint is what type of synovial joint?

- A. Hinge
- B. Pivot
- C. Ball-and-socket
- D. Saddle

? **Answer:** C — permits multiaxial movements.

2. The strongest ligament in the human body is:

- A. Ligamentum teres
- B. Iliofemoral ligament
- C. Ischiofemoral ligament
- D. Pubofemoral ligament

? **Answer:** B — prevents hyperextension.

3. Posterior dislocation of hip joint damages which nerve?

- A. Obturator
- B. Femoral
- C. Sciatic
- D. Superior gluteal

? **Answer:** C — sciatic nerve lies behind the hip joint.

4. Avascular necrosis of femoral head occurs due to injury of:

- A. Obturator artery
- B. Medial circumflex femoral artery
- C. Lateral circumflex femoral artery
- D. Inferior gluteal artery

? **Answer:** B — main arterial supply via retinacular branches.

5. Which movement is limited by ischiofemoral ligament?

- A. Flexion
- B. Extension
- C. Lateral rotation
- D. Abduction

? **Answer:** C — it tightens during medial rotation.

Knee Joint

6. The type of joint at the knee is:

- A. Simple hinge
- B. Condylar (modified hinge)
- C. Ball-and-socket

D. Saddle

? **Answer:** B.

7. The anterior cruciate ligament prevents:

- A. Backward displacement of tibia
- B. Forward displacement of tibia
- C. Backward displacement of femur
- D. Rotation of tibia

? **Answer:** B.

8. The posterior cruciate ligament is attached to:

- A. Lateral femoral condyle
- B. Medial femoral condyle
- C. Tibial tuberosity
- D. Patella

? **Answer:** B.

9. The medial meniscus is attached to which ligament?

- A. Fibular collateral ligament
- B. Tibial collateral ligament
- C. Posterior cruciate ligament
- D. Transverse ligament

? **Answer:** B.

10. Which muscle unlocks the knee joint?

- A. Gastrocnemius
- B. Biceps femoris
- C. Popliteus
- D. Sartorius

? **Answer:** C — by lateral rotation of femur on tibia.

11. Which structure is intracapsular but extrasynovial?

- A. Menisci
- B. Cruciate ligaments

- C. Collateral ligaments
- D. Patellar ligament

? **Answer:** B.

12. The “unhappy triad” involves injury to:

- A. ACL, MCL, and lateral meniscus
- B. PCL, MCL, and medial meniscus
- C. ACL, MCL, and medial meniscus
- D. ACL, LCL, and medial meniscus

? **Answer:** C.

13. Housemaid’s knee involves which bursa?

- A. Prepatellar
- B. Suprapatellar
- C. Subcutaneous infrapatellar
- D. Deep infrapatellar

? **Answer:** A.

14. The key muscle for knee stability during walking is:

- A. Vastus medialis
- B. Sartorius
- C. Biceps femoris
- D. Popliteus

? **Answer:** A — prevents patellar maltracking.

Ankle Joint

15. Type of ankle joint:

- A. Ball-and-socket
- B. Hinge
- C. Saddle
- D. Plane

? **Answer:** B.

16. The ankle joint is most stable in:

- A. Plantar flexion
- B. Dorsiflexion
- C. Mid-position
- D. Pronation

? **Answer:** B — anterior part of talus is wider and fits tightly.

17. Deltoid ligament prevents:

- A. Inversion
- B. Eversion
- C. Dorsiflexion
- D. Rotation

? **Answer:** B.

18. Most commonly injured ligament in ankle sprain:

- A. Posterior talofibular
- B. Calcaneofibular
- C. Anterior talofibular
- D. Deltoid

? **Answer:** C.

19. Pott's fracture involves:

- A. Fracture of fibular neck
- B. Bimalleolar fracture
- C. Calcaneal fracture
- D. Navicular fracture

? **Answer:** B — from eversion injury.

Foot and Tarsal Joints

20. The subtalar joint is which type?

- A. Hinge
- B. Plane synovial
- C. Saddle

D. Pivot

? **Answer:** B.

21. The talocalcaneonavicular joint is:

A. Plane

B. Hinge

C. Modified ball-and-socket

D. Condylar

? **Answer:** C.

22. The spring ligament connects:

A. Talus to calcaneus

B. Calcaneus to navicular

C. Navicular to cuboid

D. Talus to navicular

? **Answer:** B — plantar calcaneonavicular ligament.

23. The chief inverter of the foot is:

A. Tibialis anterior

B. Peroneus longus

C. Extensor digitorum longus

D. Peroneus tertius

? **Answer:** A.

24. The chief evertor of foot is:

A. Tibialis anterior

B. Tibialis posterior

C. Peroneus longus

D. Flexor hallucis longus

? **Answer:** C.

25. The calcaneocuboid joint is:

A. Saddle-type

B. Plane

C. Condylar

D. Hinge

? **Answer:** A — functionally plane.

26. The medial longitudinal arch is supported by:

A. Long plantar ligament

B. Short plantar ligament

C. Spring ligament

D. Transverse metatarsal ligament

? **Answer:** C.

27. The long plantar ligament forms a tunnel for:

A. Tibialis posterior tendon

B. Peroneus longus tendon

C. Flexor hallucis longus tendon

D. Flexor digitorum longus tendon

? **Answer:** B.

28. Flat foot occurs due to:

A. Weak tibialis posterior

B. Tight peroneus longus

C. Paralysis of tibialis anterior

D. Contracture of gastrocnemius

? **Answer:** A.

Forefoot and Toes

29. Metatarsophalangeal joints are of what type?

A. Hinge

B. Saddle

C. Condylod

D. Plane

? **Answer:** C.

30. Interphalangeal joints are of what type?

- A. Condylloid
- B. Hinge
- C. Plane
- D. Saddle

? **Answer:** B.

31. Deep transverse metatarsal ligament function:

- A. Stabilizes ankle
- B. Maintains transverse arch
- C. Prevents dorsiflexion
- D. Prevents inversion

? **Answer:** B.

Gait and Movements

32. During stance phase, heel strike is followed by:

- A. Toe off
- B. Foot flat
- C. Mid-swing
- D. Terminal swing

? **Answer:** B.

33. During swing phase, foot is cleared by action of:

- A. Peroneus longus
- B. Gastrocnemius
- C. Tibialis anterior
- D. Soleus

? **Answer:** C.

34. Locking of the knee is due to:

- A. Medial rotation of femur
- B. Lateral rotation of femur
- C. Flexion of tibia

D. Contraction of biceps femoris

? **Answer:** A.

35. Unlocking of the knee is done by:

A. Vastus medialis

B. Sartorius

C. Popliteus

D. Gastrocnemius

? **Answer:** C.

36. Trendelenburg gait is due to paralysis of:

A. Gluteus maximus

B. Gluteus medius

C. Tensor fasciae latae

D. Quadriceps

? **Answer:** B.

37. Foot drop is due to lesion of:

A. Tibial nerve

B. Superficial peroneal nerve

C. Deep peroneal nerve

D. Obturator nerve

? **Answer:** C.

38. High-stepping gait occurs in:

A. Cerebellar ataxia

B. Deep peroneal nerve injury

C. Tabes dorsalis

D. Hemiplegia

? **Answer:** C.

39. The stance phase constitutes approximately what percentage of gait cycle?

A. 20%

B. 40%

C. 60%

D. 80%

? **Answer:** C.

40. Popliteus is known as:

A. Unlocker of knee

B. Key of knee

C. Locking muscle

D. None

? **Answer:** B — “key of the knee joint.”

41. Medial rotation of tibia occurs in:

A. Flexion

B. Extension

C. Plantar flexion

D. Dorsiflexion

? **Answer:** A.

42. Inversion occurs mainly at:

A. Ankle joint

B. Subtalar joint

C. Tibiofibular joint

D. Knee joint

? **Answer:** B.

43. The nerve supply to ankle joint includes:

A. Femoral and obturator

B. Deep peroneal and tibial

C. Sciatic and femoral

D. Superficial peroneal only

? **Answer:** B.

44. The Q-angle is increased in:

A. Genu valgum

- B. Genu varum
- C. Club foot
- D. Flat foot

? **Answer:** A.

45. The knee joint is supplied by:

- A. Only femoral nerve
- B. Only tibial nerve
- C. Genicular branches of several nerves
- D. Popliteal artery alone

? **Answer:** C.

Clinical Combinations

46. Damage to the medial circumflex femoral artery leads to:

- A. Ischemic necrosis of gluteus maximus
- B. Avascular necrosis of femoral head
- C. Varus deformity
- D. Weak hip flexion

? **Answer:** B.

47. The artery in ligamentum teres of femur is a branch of:

- A. Femoral artery
- B. Obturator artery
- C. Internal pudendal artery
- D. Superior gluteal artery

? **Answer:** B.

48. Dorsalis pedis pulse is felt:

- A. Behind medial malleolus
- B. Lateral to extensor hallucis longus tendon
- C. Medial to extensor digitorum longus
- D. In sinus tarsi

? **Answer:** B.

49. Genu recurvatum means:

- A. Hyperflexion at knee
- B. Hyperextension at knee
- C. Valgus deformity
- D. Varus deformity

? **Answer:** B.

50. The plantar aponeurosis helps maintain:

- A. Lateral arch
- B. Medial arch
- C. Both longitudinal arches
- D. Transverse arch

? **Answer:** C.

These **50 MCQs** cover all essential anatomical, functional, and clinical facts from the *Joints of Lower Limb* chapter — ideal for MBBS professional exams, NEET-PG, and viva practice.

? Viva Voce — Joints of the Lower Limb

HIP JOINT

1. What type of joint is the hip joint?

? Synovial **ball-and-socket** joint.

2. What bones form the hip joint?

? **Head of femur** and **acetabulum** of hip bone.

3. Which structure deepens the acetabulum?

? **Acetabular labrum.**

4. Which part of the acetabulum is non-articular?

? Acetabular notch and fossa.

5. Name the ligaments of the hip joint.

? Iliofemoral, pubofemoral, ischiofemoral, ligamentum teres, and transverse acetabular ligament.

6. Which is the strongest ligament of the body?

? Iliofemoral ligament (Y-shaped of Bigelow).

7. Which ligament prevents hyperextension at the hip?

? Iliofemoral ligament.

8. What is the main blood supply to the femoral head?

? Medial circumflex femoral artery (retinacular branches).

9. Which nerve supplies the hip joint?

? Femoral, obturator, superior gluteal, and nerve to quadratus femoris.

10. Why does posterior dislocation of hip occur commonly?

? Because the posterior capsule is weak and thin.

KNEE JOINT

11. What type of joint is the knee?

? Condylar (modified hinge) synovial joint.

12. What bones form the knee joint?

? Femur, tibia, and patella.

13. Which muscle acts as the chief extensor of the knee?

? Quadriceps femoris.

14. What is the role of patella?

? Increases leverage of quadriceps and protects the joint.

15. Name the intracapsular structures of the knee joint.

? Cruciate ligaments and menisci.

16. Which meniscus is commonly torn?

? **Medial meniscus** — because it's fixed to MCL.

17. What is the function of menisci?

? Deepen articular surface, absorb shock, and stabilize joint.

18. What is “locking” of the knee?

? Medial rotation of femur on tibia during terminal extension ? stability in standing.

19. Which muscle unlocks the knee?

? **Popliteus.**

20. What is the blood supply of the knee joint?

? **Genicular anastomosis.**

21. What is the “unhappy triad”?

? Injury to **ACL, MCL, and medial meniscus.**

22. Which nerve supplies the knee joint?

? **Femoral, tibial, obturator, and common peroneal nerves.**

23. What is Housemaid's knee?

? **Prepatellar bursitis.**

24. What is Clergyman's knee?

? **Subcutaneous infrapatellar bursitis.**

ANKLE JOINT

25. What type of joint is the ankle?

? **Hinge** synovial joint.

26. What bones form the ankle joint?

? Lower ends of **tibia and fibula** with **talus**.

27. What are the movements of the ankle?

? **Dorsiflexion and plantar flexion.**

28. Which ligament prevents over-eversion?

? **Deltoid ligament.**

29. Which ligament prevents over-inversion?

? Lateral ligament (esp. anterior talofibular).

30. In which position is the ankle most stable?

? Dorsiflexion.

31. What is Pott's fracture?

? Fracture of both malleoli due to twisting/eversion injury.

TIBIOFIBULAR JOINTS

32. What type of joint is the superior tibiofibular joint?

? Plane synovial joint.

33. What type is the inferior tibiofibular joint?

? Fibrous syndesmosis.

34. What is the main ligament stabilizing the inferior tibiofibular joint?

? Interosseous tibiofibular ligament.

35. What happens in high ankle sprain?

? Tear of inferior tibiofibular syndesmosis ? widened mortise.

FOOT JOINTS

36. Which joint allows inversion and eversion?

? Subtalar and transverse tarsal joints.

37. What type is the talocalcaneonavicular joint?

? Modified ball-and-socket.

38. Which ligament supports the head of the talus?

? Plantar calcaneonavicular (spring) ligament.

39. What type of joint is the calcaneocuboid joint?

? Saddle-type.

40. What movements occur at the metatarsophalangeal joints?

? Flexion, extension, abduction, and adduction.

41. What type of joint is the interphalangeal joint?

? Hinge type.

42. What maintains the arches of the foot?

? Shape of bones, ligaments, and muscles.

ARCHES OF FOOT

43. Which is the highest arch?

? Medial longitudinal arch.

44. What ligament maintains the medial arch?

? Spring ligament.

45. Which muscles maintain the medial arch?

? Tibialis posterior, flexor hallucis longus, abductor hallucis.

46. Which structure maintains the lateral arch?

? Long and short plantar ligaments, peroneus longus and brevis.

47. Which structure maintains the transverse arch?

? Peroneus longus tendon and adductor hallucis (transverse head).

48. What is flat foot (pes planus)?

? Collapse of medial arch due to ligament and muscle weakness.

49. What is pes cavus?

? Exaggerated longitudinal arch.

50. What is talipes equinovarus?

? Clubfoot — plantarflexed, inverted, and adducted foot.

GAIT

51. What is gait?

? Rhythmic, alternating movement of limbs that moves the body forward.

52. Name two phases of gait cycle.

? Stance phase and Swing phase.

53. Which phase constitutes 60% of the gait cycle?

? **Stance phase.**

54. What causes Trendelenburg gait?

? Paralysis of **gluteus medius/minimus** (superior gluteal nerve palsy).

55. What causes foot drop?

? Paralysis of **dorsiflexors** (deep peroneal nerve injury).

56. What is waddling gait?

? Bilateral weakness of hip abductors.

57. What is antalgic gait?

? Shortened stance on painful limb (seen in arthritis or fracture).

58. What is ataxic gait?

? Unsteady gait due to cerebellar or sensory pathway lesion.

59. What muscle initiates knee flexion while walking?

? **Popliteus.**

60. What is locking of knee?

? Medial rotation of femur during final extension, stabilizing the joint.

61. What is unlocking of knee?

? Lateral rotation of femur by **popliteus** during flexion initiation.

62. What is genu valgum?

? Knees close together (knock knees).

63. What is genu varum?

? Knees apart (bow legs).

64. Which condition increases Q-angle?

? **Genu valgum.**

65. Which condition decreases Q-angle?

? **Genu varum.**

APPLIED CLINICAL VIVA

66. What is anterior drawer test?

? Tests integrity of **ACL** — tibia moves forward abnormally.

67. What is posterior drawer test?

? Tests integrity of **PCL** — tibia moves backward abnormally.

68. Why is medial meniscus more prone to injury?

? It's firmly attached to the **MCL** and capsule, making it less mobile.

69. What is Baker's cyst?

? Herniation of synovial membrane into popliteal fossa.

70. What is plantar fasciitis?

? Inflammation of plantar aponeurosis ? heel pain on first step in morning.

71. What is calcaneal spur?

? Bony outgrowth from calcaneal tuberosity due to chronic traction by plantar fascia.

72. What is the “key of the knee”?

? **Popliteus** muscle.

73. Which ligament maintains the talus in place?

? **Spring** ligament.

74. Where can the pulse of dorsalis pedis artery be felt?

? **Lateral to the tendon of extensor hallucis longus** on dorsum of foot.

75. What law explains joint nerve supply?

? **Hilton's Law** — the nerves supplying the muscles acting on a joint also supply the joint and its overlying skin.