

LOWER LIMB MCQ

Which of the following muscle has dual nerve supply:

- a) Rectus femoris
- b) Sartorius
- c) Pectineus
- d) Adductor longus
- e) Vastus lateralis

1. Iliotibial tract is inserted on:

- a) Lower roughened part of tibial tuberosity
- b) Upper smooth part of tibial tuberosity
- c) Medial condyl of tibia
- d) Lateral condyl of tibia
- e) Upper part of medial surface of tibia

2. Profunda femoral artery is normally the vessel of supply:

- a) To the posterior muscles of thigh
- b) To the anterior muscles of thigh
- c) To the medial muscles of thigh
- d) To the lateral muscles of thigh
- e) To all the muscles of thigh

3. The femoral nerve is formed by the posterior division of the anterior rami of:

- a) L2, L3, L4
- b) L3, L4, L5
- c) L1, L2, L3
- d) L4, L5
- e) L4, L5, S1

4. Which of the following artery is most commonly used to record blood pressure in lower limb:

- a) Femoral artery
- b) Dorsalis pedis artery
- c) Popliteal artery
- d) Anterior tibial artery
- e) Posterior tibial artery

5. Which one of the following muscle is inserted into adductor tubercle of femur:

- a) Adductor brevis
- b) Adductor longus



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- c) Biceps femoris
- d) Adductor magnus
- e) Psoas major

6. The obturator nerve innervates:

- a) Obturator externus
- b) Popliteus
- c) Quadriceps femoris
- d) Sartorius
- e) Semitendinosus

7. A 62 year old woman slips and falls on the bathroom floor. As a result she has a posterior dislocation of hip joint and fracture of neck of femur. Rupture of ligament teres may lead to damage to a branch of which of the following arteries:

- a) Medial circumflex femoral
- b) Lateral circumflex femoral
- c) Obturator
- d) Superior gluteal
- e) Inferior gluteal

8. A 20-year-old college student receives a severe blow on the inferolateral side of the left knee joint while playing football. Radiographic examination reveals a fracture of the head and neck of the fibula. Which of the following nerves is damaged:

- a) Sciatic
- b) Tibial
- c) Common peroneal
- d) Deep peroneal
- e) Superficial peroneal

10 The muscle that unlocks the knee joint is?

- a) Quadriceps femoris
- b) Popliteus
- c) Gastrocnemius
- d) Plantaris
- e) Biceps femoris

11. An orthopedic surgeon ligates the posterior tibial artery at its origin. Which of the following arteries has no blood flow immediately after the ligation:

- a) Peroneal
- b) Dorsalis pedis
- c) Superior medial genicular



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- d) Anterior tibial
- e) Descending genicular artery

12. A 45-year-old man has trouble walking. At his physician's clinic, when he is asked to stand on his right foot, his left hip drops. Which of the following nerves is most likely damaged, causing his problem:

- a) Left inferior gluteal
- b) Right inferior gluteal
- c) Left superior gluteal
- d) Right superior gluteal
- e) none of the above

13. Which of the following originates at the ischeal spine?

- a) Piriformis
- b) Gemellus superior
- c) Quadratus femoris
- d) Gemellus inferior
- e) None of the above

14. Hip fractures, especially in the elderly, often do not heal adequately. What type of femoral fracture in adults is most likely to result in avascular necrosis of the femoral head:

- a) Acetabular
- b) Cervical (neck)
- c) Intertrochanteric (between the trochanters)
- d) Subtrochanteric
- e) Midfemoral shaft

15. A patient experienced a prolonged stay in one position during a recent surgery and postoperative recovery that resulted in compression of the common fibular (peroneal) nerve against the fibular head. Which of the following motor deficits would be most likely to occur:

- a) Loss of extension at the knee
- b) Loss of plantar flexion
- c) Loss of flexion at the knee
- d) Loss of eversion
- e) Loss of medial rotation of the tibia

16 Housemaid's knee is associated with the inflammation of which of the following bursae?

- a) Suprapatellar
- b) Subcutaneous infrapatellar
- c) Prepatellar



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- d) Deep infrapatellar
- e) None of the above

17 A 72-year-old female suffered a hip dislocation when she fell down the steps to her garage. Which of the following structures is most significant in resisting hyperextension of the hip joint:

- a) Pubofemoral ligament
- b) Ischiofemoral ligament
- c) Iliofemoral ligament
- d) Negative pressure in the acetabular fossa
- e) Gluteus maximus muscle

18 Intramuscular injection is given in following quadrant of gluteal region:

- a) Upper lateral
- b) Upper medial
- c) Lower medial
- d) Lower lateral
- e) Midline

19 A 77-year-old woman has difficulty climbing stairs because of weakness in her limb. Her knee jerk reflex is normal and she is able to stand on her heels and on the "balls" of her feet. Injury to which of the following nerves is the most likely cause of these findings:

- a) Tibial
- b) Obturator
- c) Inferior gluteal
- d) Femoral
- e) Common peroneal

20 What type of joint is hip joint:

- a) Ball & socket joint
- b) Hinge joint
- c) Pivot joint
- d) Ellipsoid joint
- e) Saddle joint

21 The sacral plexus is composed of:

- a) The anterior rami of spinal nerves L2-S1
- b) The anterior rami of spinal nerves L4-S4
- c) The posterior rami of spinal nerves L4-S4
- d) The posterior rami of spinal nerves L2-S1
- e) None of the above



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22 Where does the sciatic nerve pass through into the lower limb?

- a) The lesser sciatic notch
- b) The obturator foramen
- c) The greater sciatic notch superior to piriformis
- d) The greater sciatic notch inferior to piriformis
- e) None of the above

23 The ischiofemoral ligament limits:

- a) Abduction
- b) Medial rotation
- c) Lateral rotation
- d) Adduction
- e) None of the above

24 Which one of the following vein of lower limb is used for venous cut down?

- a) Femoral vein
- b) Perforating vein
- c) Popliteal vein
- d) Great saphenous vein
- e) Short saphenous vein

25 Ankle joint is synovial joint of which one of following variety?

- a) Plane variety
- b) Ball and socket variety
- c) Hinge variety
- d) Pivot variety
- e) Condylod variety



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Mcqs From Lower Limb anatomy

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This document contain two section s

- Simple theoretical Questions (answers at the end of this section)
- Clinically oriented Problem Based questions (Answer after every set of ten Questions with explanation)

Section # 01

1. Loss of patellar reflex and loss of cutaneous sensation on the anteromedial side of the leg indicate damage to this spinal nerve:

- A.L2
- B.L4
- C.L5
- D.S2
- E.S4

2. Which statement concerning the great saphenous vein is false?

- A. When it is removed and inserted as a coronary bypass, it is reversed, so that the cusps do not obstruct blood flow.
- B. It is located about ten cm. (a handbreadth) posterior to the medial border of the patella.
- C. It passes anterior to the medial malleolus.
- D. It perforates the femoral sheath
- E. It is accompanied by the sural nerve in the leg.

3. The deep fascia of the thigh:

- A. is thickened on its medial side to form the iliotibial tract
- B. has an oval opening which transmits the small saphenous vein
- C. is attached to the whole length of the inguinal ligament

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- D. is designated the cribriform fascia
E. lies superficial to the superficial inguinal lymph nodes
4. Structures passing through the adductor hiatus include:
A. saphenous nerve
B. profunda femoral artery
C. both
D. neither
5. Skin on the most dorsal part of the foot is supplied by the:
A. sural nerve
B. first sacral nerve
C. both
D. neither
6. The muscle which can both flex the hip and extend the knee is:
A. sartorius
B. rectus femoris
C. semimembranosus
D. biceps femoris
E. vastus lateralis
7. The actions of the gracilis muscle include _____ of the thigh at the hip and _____ of the leg at the knee.
A. lateral rotation, lateral rotation
B. medial rotation, extension
C. abduction, flexion
D. flexion, extension
E. adduction, flexion
8. Which muscle is able to produce flexion at the knee joint more efficiently if the hip joint is in flexion at the same time?
A. semimembranosus
B. rectus femoris
C. hamstring part of adductor magnus
D. sartorius
E. short head of biceps femoris
9. Difficulty extending the knee can result from damage to the _____.
A. femoral nerve
B. inferior gluteal nerve
C. common peroneal nerve
D. superior gluteal nerve
E. tibial nerve

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10. Muscles in the posterior thigh compartment are paralyzed because the sciatic nerve has been severed. Nevertheless the patient can still produce some flexion of the leg at the knee due to action of the:

- A. sartorius m.
- B. semitendinosus m.
- C. both A and B
- D. short head of biceps femoris
- E. gastrocnemius

11. The muscle that is not a medial rotator of the leg is the:

- A. semimembranosus
- B. semitendinosus
- C. biceps femoris
- D. gracilis
- E. popliteus

12. After an obturator nerve injury, some adduction of the thigh is still possible because of double innervation to the:

- A. gracilis m.
- B. adductor magnus m.
- C. sartorius m.
- D. adductor longus m.
- E. adductor brevis m.

13. After passing through the obturator canal, divisions of the obturator nerve (an anterior branch and a posterior branch) pass on either side of the:

- A. pectineus m.
- B. adductor brevis m.
- C. gracilis m.
- D. adductor magnus m.
- E. adductor longus m.

14. Injury to the tibial nerve in the popliteal fossa might result in:

- A. loss of eversion
- B. (diminished sensation) on dorsal surface of foot
- C. inability to stand on one's toes
- D. drop foot
- E. loss of sensation between the great and second toe

15. The fibular artery:

- A. supplies the muscles of the anterior compartment of the leg
- B. passes anterior to the interosseous membrane
- C. usually becomes the dorsalis pedis
- D. courses through the deep posterior compartment of the leg
- E. none of the above

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16. A tight plaster cast that exerted pressure on the head and neck of the fibula might result in loss of:

- A. eversion of the foot
- B. foot drop
- C. both
- D. neither

17. When the muscles of the anterior compartment of the leg swell from some kind of overuse:

- A. the deep fibular nerve may be injured
- B. there is loss of sensation in the web space between the great and second toes
- C. both
- D. neither

18. The medial and lateral plantar neurovascular structures enter the foot deep to the:

- A. inferior peroneal retinaculum
- B. abductor digiti minimi m.
- C. abductor hallucis m.
- D. quadratus plantae m.
- E. sustentaculum tali

19. The medial plantar nerve innervates:

- A. abductor hallucis m.
- B. abductor digiti minimi m.
- C. adductor hallucis m.
- D. 2-4 lumbrical muscles

20. The deep plantar arch:

- A. is formed primarily from the lateral plantar artery
- B. passes between the first and second muscular layers of the foot
- C. both
- D. neither

21. The arcuate artery

- A. is a branch of the medial plantar artery
- B. courses deep to extensor digitorum brevis
- C. both
- D. neither

22. The lateral plantar nerve:

- A. courses between quadratus plantae and flexor digitorum brevis muscles
- B. supplies quadratus plantae m.
- C. both
- D. neither

23. The two bellies of flexor hallucis brevis muscle:

- A. have insertions that contain sesmoid bones

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- B. attach to the base of the distal phalanx of the great toe
 - C. pass on either side of the tendon of extensor hallucis longus
 - D. are innervated by the lateral plantar nerve
 - E. all of the above
24. The tendon of peroneus longus:
- A. attaches to the navicular bone
 - B. courses between quadratus plantae and flexor digitorum brevis muscles
 - C. both
 - D. neither
25. Which statement is false concerning the hip joint?
- A. it is a ball and socket joint
 - B. the entire acetabulum articulates with the femoral head
 - C. the acetabulum is deepened by the acetabular labrum
 - D. the ligamentum teres is attached to the fovea on the femoral head
 - E. the iliofemoral ligament attaches to the intertrochanteric line
26. Which statement concerning the hip joint is false?
- A. The transverse acetabular ligament bridges the acetabular notch
 - B. The proximal attachment of the iliofemoral ligament is to the ASIS
 - C. The acetabulum is formed by the ilium, ischium, and pubis
 - D. The iliofemoral ligament prevents hyperextension of the hip joint
 - E. Fractures of the femoral neck, rather than the femoral shaft, usually sever arteries supplying the femoral head
27. The fibular collateral ligament is:
- A. tested by the application of valgus stress, rather than varus stress, to the leg.
 - B. located superficial to the tendon of popliteus
 - C. attached to the lateral meniscus
 - D. located superficial to the biceps femoris tendon
 - E. located deep to the iliotibial tract
28. The _____ ligament of the knee joint attaches to the _____.
- A. lateral collateral _____ shaft of fibula, deep to pes anserinus
 - B. patellar _____ anterior intercondylar area of the tibia
 - C. posterior cruciate _____ posterior surface of tibia, just above soleal line
 - D. tibial collateral _____ periphery of medial meniscus
 - E. anterior cruciate _____ anterior intercondylar area, just anterior to the anterior horn of the medial meniscus
29. True statements concerning the anterior cruciate ligament include:
- A. its attachment to the tibial plateau (top of tibia) is anterior to the attachment of the anterior horn of the medial meniscus

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- B. it prevents posterior displacement of the femur on the tibia
- C. both
- D. neither

30. Important stabilizing structures on the lateral side of the knee joint are:

- A. tibial collateral ligament; biceps tendon; and iliotibial tract
- B. fibular collateral ligament; biceps tendon; and iliotibial tract
- C. fibular collateral ligament; cruciate ligament; and pes anserinus
- D. tibial collateral ligament; popliteus tendon; and patellar ligament
- E. fibular collateral ligament; coronary ligament; and transverse ligament

31. The major cutaneous innervation of the anteromedial side of the leg is provided by which nerve?

- A. obturator
- B. sural
- C. superficial peroneal
- D. saphenous
- E. medial sural

32. Which muscle attaches to the lesser trochanter of the femur?

- A. iliopsoas
- B. pectineus
- C. quadratus femoris
- D. gluteus medius
- E. obturator externus

33. The principle action of the gracilis muscle is _____ of the thigh at the hip.

- A. lateral rotation
- B. medial rotation
- C. abduction
- D. flexion
- E. adduction

34. In the subsartorial canal this muscle separated the femoral artery from the deep (profunda) femoral artery:

- A. pectineus
- B. adductor magnus
- C. adductor brevis
- D. adductor longus
- E. psoas major

35. The neck of a femoral hernia lies lateral to the:

- A. pubic tubercle
- B. femoral vein

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- C. femoral artery
- D. femoral nerve
- E. femoral sheath

36. A 50-year-old man complained of a lump in his groin. His physician suspected an enlarged superficial inguinal lymph node. What areas should be examined to find the source of the problem?

- A. skin of the buttocks
- B. skin of the scrotum
- C. both
- D. neither

37. The great saphenous vein:

- A. passes anterior to the medial malleolus
- B. passes a handbreadth posterior to the medial border of the patella
- C. both
- D. neither

38. This structure forms the boundary between the greater and lesser sciatic foramina:

- A. ischial tuberosity
- B. posterior superior iliac spine
- C. sacrotuberous ligament
- D. sacrospinous ligament
- E. piriformis muscle

39. This is the only gluteal muscle to originate from the posterior surface of the sacrum:

- A. quadratus femoris
- B. gluteus maximus
- C. gluteus medius
- D. piriformis
- E. biceps femoris

40. Nerve injury of sacral spinal nerve 1 will result in pain located along the:

- A. anterior surface of the thigh
- B. anteromedial surface of the leg
- C. medial side of the foot
- D. lateral side of the foot
- E. none of the above

41. If the sciatic nerve were damaged by an intramuscular injection in the buttocks, the patient would have diminished cutaneous sensation on the:

- A. dorsum of the foot
- B. anteromedial side of the leg
- C. both
- D. neither

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42. All the following pass through the greater sciatic foramen EXCEPT:
- A. piriformis muscle
 - B. pudendal nerve
 - C. sciatic nerve
 - D. inferior gluteal vessels and nerve
 - E. obturator internus tendon
43. The superior gluteal nerve:
- A. contains fibers from the second and third lumbar nerves
 - B. leaves the pelvis just inferior to the piriformis muscle
 - C. must be intact to resist pelvic tilt during gait
 - D. innervates the piriformis muscle
 - E. innervates the gemellus superior muscle
44. All of the following muscles are lateral rotators of the thigh at the hip EXCEPT the:
- A. gluteus maximus
 - B. gluteus minimus
 - C. obturator internus
 - D. obturator externus
 - E. piriformis
45. All of the following muscles are medial rotators of the leg EXCEPT:
- A. semimembranosus
 - B. semitendinosus
 - C. biceps femoris
 - D. gracilis
 - E. popliteus
46. Which statement about the semimembranosus muscle is FALSE?
- A. it extends at the hip joint
 - B. it attaches to the medial condyle of the tibia
 - C. it flexes at the knee joint
 - D. it forms the arcuate ligament
 - E. it is innervated by the tibial portion of the sciatic nerve
47. Gracilis, sartorius, semimembranosus
- A. form the pes anserinus
 - B. extend the knee
 - C. act across both hip and knee joints
 - D. all have the same innervation
 - E. help laterally rotate the femur
48. What nerve has been damaged in a patient who can no longer extend his knee?
- A. sciatic
 - B. common peroneal

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- C. femoral
- D. obturator
- E. tibial



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- C. femoral
- D. obturator
- E. tibial

49. What nerve has been damaged in a patient whose pelvis tilts too far toward the right when walking?

- A. right superior gluteal nerve
- B. left superior gluteal nerve
- C. right inferior gluteal nerve
- D. left inferior gluteal nerve
- E. right femoral nerve

50. Excessive anterior movement of the tibia when pulling forward on the leg with the knee flexed would indicate damage to this ligament of the knee:

- A. medial collateral
- B. lateral collateral
- C. anterior cruciate
- D. posterior cruciate
- E. oblique popliteal

51. The saphenous nerve

- A. is a motor branch of the femoral nerve
- B. accompanies the short saphenous vein in the leg
- C. is the only branch of the femoral nerve that extends considerably below the knee
- D. emerges through the saphenous hiatus
- E. is a sensory branch of the obturator nerve

52. What nerve is damaged in a patient whose foot is everted and dorsiflexed and who cannot flex his/her toes?

- A. tibial
- B. superficial peroneal
- C. deep peroneal
- D. common peroneal
- E. medial peroneal

53. The femoral sheath

- A. is found in the femoral triangle
- B. has a medially located compartment called the femoral canal
- C. contains the femoral artery, vein and nerve
- D. all of the above are correct
- E. only a and b above are correct

54. Fascia lata

- A. is the investing fascia of the thigh
- B. is fused with the inguinal ligament from the anterior superior iliac spine to the pubic tubercle

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- C. is thickened laterally forming the iliotibial tract
D. all of the above are correct
E. only b and c are correct
55. The lateral compartment of the leg
A. usually contains no major artery
B. contains only two muscles
C. both a and b are correct
D. contains the peroneus tertius muscle
E. includes muscles innervated by the deep fibular nerve
56. The biceps femoris muscle
A. lies lateral to the popliteal fossa
B. lies medial to the popliteal fossa
C. forms the floor of the popliteal fossa
D. gives rise to the oblique popliteal fossa
E. does not attach to the leg bone
57. Where would you feel for the pulse of the dorsalis pedis artery?
A. directly posterior to the tendon of flexor digitorum longus
B. directly lateral to the tendon of tibialis anterior
C. directly lateral to the tendon of extensor hallucis longus
D. directly posterior to the tendon of peroneus longus
E. directly lateral to the tendon of extensor digitorum longus
58. Which nerve has been damaged in a patient whose pelvis tilts down to the left when he stands on his right foot?
A. right inferior gluteal nerve
B. right superior gluteal nerve
C. left inferior gluteal nerve
D. left superior gluteal nerve
E. left obturator nerve
59. The gluteus maximus muscle:
A. has an origin from the ischium
B. inserts only onto the femur
C. is a flexor of the thigh at the hip
D. is innervated by the superior gluteal nerve
E. none of the above
60. The inferior gluteal nerve:
A. contains fibers from the second and third lumbar nerves
B. leaves the pelvis just inferior to the piriformis muscle
C. must be intact to resist pelvic tilt during gait
D. innervates the tensor fasciae latae muscle

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E. innervates the gemellus inferior muscle

61. The nerve supply to the muscles of the lateral fascial compartment of the leg is directly by this nerve:

- A. deep peroneal
- B. superficial peroneal
- C. anterior tibial
- D. posterior tibial
- E. common peroneal

62. The spinal cord segment that supplies the cutaneous innervation to the lateral side of the foot is:

- A. L3
- B. L4
- C. L5
- D. S1
- E. S2

63. The most important arterial supply to the head of the femur is via:

- A. the artery of the ligamentum teres
- B. retinacular vessels
- C. vessels traveling along the spermatic cord
- D. internal pudendal artery

64. If the foot is inverted due to paralysis of some muscles, one of the muscles that is paralyzed is the:

- A. tibialis posterior
- B. tibialis anterior
- C. peroneus longus
- D. extensor hallucis longus
- E. extensor digitorum longus

65. The blood supply to the anterior compartment muscles of the leg is normally:

- A. the anterior tibial artery, a branch of the popliteal artery
- B. the peroneal artery, a branch of the posterior tibial artery
- C. the deep femoral artery
- D. A and B above
- E. A and C above

66. The deep peroneal nerve supplies motor fibers to:

- A. peroneus longus
- B. peroneus brevis
- C. peroneus tertius (a portion of extensor digitorum longus)
- D. flexor hallucis longus

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- E. all of the above
67. The anterior tibial artery:
- A. is normally a branch of the popliteal artery
 - B. runs with the deep peroneal nerve on the anterior surface of the interosseus membrane of the leg
 - C. usually terminates as the dorsalis pedis artery
 - D. all of the above
 - E. only A and B above
68. The following structures are in the femoral sheath, which is an extension of abdominal and pelvic fascias:
- A. femoral artery
 - B. femoral vein
 - C. deep femoral lymphatics
 - D. fatty connective tissue
 - E. all of the above
69. The branch(es) of the femoral nerve that extend into the leg proper (ie lower leg) is (are):
- A. the motor nerve to the vastus lateralis
 - B. the common peroneal nerve
 - C. the obturator nerve
 - D. the saphenous nerve, carrying only sensory fibers
 - E. all of the above
70. The anterior part of the talus articulates with the:
- A. cuboid
 - B. first, second and third cuneiform bones
 - C. fourth and fifth cuneiform bones
 - D. calcaneus
 - E. navicular
71. A barefoot child steps on a broken bottle and severs an artery on the medial side of the plantar surface of the big toe; the best place to apply pressure to stop bleeding would be:
- A. on the dorsum of the foot, between the tendons of tibialis anterior and extensor hallucis longus
 - B. on the dorsum of the foot, between the tendons of extensor digitorum longus and peroneus tertius
 - C. between medial malleolus and calcaneus
 - D. between lateral malleolus and calcaneus
 - E. on the plantar surface of the foot, between the first and second metatarsal bones
72. Severing the common peroneal nerve results in inability to:

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- A. evert the foot
- B. extend (dorsiflex) the foot
- C. both
- D. neither

73. When the foot is suddenly and violently inverted, the tuberosity of the fifth metatarsal may be avulsed (pulled off) by the tendon of this muscle:

- A. peroneus longus
- B. peroneus brevis
- C. peroneus tertius
- D. tibialis anterior
- E. tibialis posterior

74. The pulse of the posterior tibial artery is best felt:

- A. against the popliteal surface of the tibia
- B. lateral to the neck of the fibula
- C. anterior to the lateral malleolus
- D. posterior to the lateral malleolus
- E. posterior to the medial malleolus

75. Muscles inserting on the medial aspect of the proximal end of the tibia include:

- A. gracilis
- B. hamstring part of adductor magnus
- C. both
- D. neither

76. The patellar tendon reflex involves which spinal nerves?

- A. L1 and L2
- B. L3 and L4
- C. L4 and L5
- D. L5 and S1
- E. S2 and S3

77. Which statements concerning the quadriceps femoris is FALSE?

- A. The tone of quadriceps femoris is very important to the stability of the knee joint.
- B. The final insertion of most of its fibers is to the tibial tuberosity via the patellar ligament.
- C. The lowest fibers of vastus medialis prevent medial displacement of the patella.
- D. Much of the vastus lateralis and vastus medialis originate from the linea aspera.

78. Each of the following matchings of thigh muscles with points of origin is correct EXCEPT:

- A. sartorius—anterior superior iliac spine
- B. long head of biceps femoris—ischial tuberosity
- C. straight head of rectus femoris—anterior inferior iliac spine
- D. pectineus—superior ramus of pubis

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D. pectineus—superior ramus of pubis

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E. semitendinosus—linea aspera of femur

79. Each of the following statements concerning the tibial nerve is true EXCEPT:

- A. It is a branch of the sciatic nerve.
- B. It is motor to all muscles in the superficial and deep compartments of the leg.
- C. It passes down the leg between gastrocnemius and soleus
- D. It passes posterior to the medial malleolus
- E. Its terminal branches are the medial and lateral plantar nerves.

80. The muscle that contracts to unlock the extended knee joint is the:

- A. popliteus
- B. plantaris
- C. medial head of the gastrocnemius
- D. lateral head of gastrocnemius
- E. soleus

81. Femoral hernias:

- A. pass downward anterior to the inguinal ligament
- B. pass medial to the pubic tubercle
- C. emerge superior to the pubic tubercle
- D. utilize the lateral compartment of the sheath
- E. pass downward posterior and inferior to the inguinal ligament

82. A sharp blow to the neck of the fibula is most apt to result in damage to which structure?

- A. sciatic nerve
- B. common peroneal nerve
- C. tibial nerve
- D. popliteal nerve
- E. none of the above

83. Paralysis of which nerve would result in “foot drop”?

- A. femoral
- B. tibial
- C. superficial peroneal
- D. deep peroneal
- E. obturator

84. Your patient is unable to stand on his toes. The damaged nerve is the:

- A. femoral
- B. tibial
- C. superficial peroneal
- D. deep peroneal
- E. sural

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85. This artery passes posterior to the medial malleolus:
- A. posterior tibial
 - B. anterior tibial
 - C. peroneal
 - D. dorsalis pedis
 - E. arcuate artery
86. Tibialis anterior and tibialis posterior BOTH:
- A. invert the foot
 - B. insert on the tuberosity of the navicular bone
 - C. both
 - D. neither
87. The flexor retinaculum of the foot attaches to which two bony structures?
- A. distal ends of tibia and fibula
 - B. calcaneus and medial malleolus
 - C. lateral malleolus and calcaneus
 - D. medial malleolus and talus
 - E. talus and navicular
88. In a very young child, the head of the femur usually receives most of its blood supply from a branch of the:
- A. obturator artery
 - B. external iliac artery
 - C. femoral artery
 - D. deep femoral artery
 - E. pudendal artery
89. The iliofemoral ligament:
- A. attaches to the anterior superior iliac spine
 - B. resists flexion at the hip
 - C. both
 - D. neither
90. A torn anterior cruciate ligament would permit:
- A. valgus displacement of the leg at the knee
 - B. varus displacement of the leg at the knee
 - C. anterior displacement of the leg at the knee
 - D. posterior displacement of the leg at the knee
 - E. all of the above
91. The “spring” ligament attaches to what two bones?

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- A. fibula and calcaneus
- B. tibia and calcaneus
- C. tibia and talus
- D. talus and navicular
- E. calcaneus and navicular

92. The ligament usually injured in a hyper-inversion of the foot (sprained ankle) is the:

- A. Anterior tibiotalar
- B. Posterior tibiotalar
- C. Medial collateral
- D. Lateral collateral

93. The anterior tibial artery:

- A. is the source of the peroneal artery
- B. continues as dorsalis pedis artery
- C. usually travels with the superficial peroneal nerve
- D. all of the above
- E. none of the above

94. The gastrocnemius muscle can produce:

- A. plantar flexion of the foot
- B. flexion of the leg at the knee
- C. both
- D. neither

95. The soleus muscle:

- A. is innervated by the tibial nerve
- B. is a plantar flexor of the foot
- C. both
- D. neither

96. Which muscle inserts onto the tuberosity of the fifth metatarsal bone?

- A. Abductor digiti minimi
- B. Peroneus brevis
- C. Peroneus longus
- D. Tibialis anterior
- E. Tibialis posterior

97. The muscles of the lateral compartment of the leg are:

- A. dorsiflexors of the foot
- B. evertors of the foot
- C. both
- D. neither

98. Which muscle is essential to lift the heel off the ground in walking?

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- A. peroneus longus
- B. tibialis anterior
- C. flexor hallucis longus
- D. flexor hallucis brevis
- E. gastrocnemius

99. The fibular collateral ligament is:

- A. tested by the application of valgus stress, rather than varus stress, to the knee joint
- B. located superficial to the tendon of the popliteus
- C. attached to the lateral meniscus
- D. located superficial to the biceps femoris tendon
- E. located deep to the iliotibial tract

100. Which statement concerning ligaments of the hip joint is FALSE?

- A. the iliofemoral ligament prevents hyperextension
- B. the ligament of the head of the femur is attached to the transverse acetabular ligament
- C. the iliofemoral ligament is in the shape of an inverted Y
- D. the ischiofemoral ligament attaches to the intertrochanteric crest
- E. the transverse acetabular ligament bridges the acetabular notch

101. The deltoid ligament :

- A. is attached to the talus, navicular and calcaneus
- B. is torn less commonly than the lateral ligament of the ankle
- C. both
- D. neither

102. The medial meniscus:

- A. is torn less commonly than the lateral meniscus
- B. is much broader behind than in front
- C. is nearly circular (O- shaped)
- D. is separated from the joint capsule by the popliteus tendon
- E. is attached to some of the inserting fibers of pes anserinus

103. The suprapatellar bursa:

- A. communicates directly with the knee joint cavity
- A. is located superficial to the quadriceps femoris muscle
- B. both
- C. neither

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104. Which one of the following structures attaches to the most anterior part of the tibial plateau?

- A. anterior cruciate ligament
- B. posterior cruciate ligamet
- C. anterior horn of the medial meniscus
- D. anterior horn of the lateral semilunar cartilage
- E. ligament of Wrisberg

105. Which nerve is endangered during a canulation of the great saphenous vein?

- A. lateral sural
- B. medial sural
- C. saphenous
- D. superficial peroneal
- E. medial femoral cutaneous

106. The sural nerve is located most closely to the:

- A. inferior border of the gluteus maximus
- B. lateral malleolus
- C. great saphenous vein
- D. neck of the fibula
- E. medial side of the patella

107. The best diagnostic test for the anterior compartment syndrome of the leg is to check for loss of cutaneous sensation on the:

- A. medial part of the plantar surface of the foot
- B. lateral part of the plantar surface of the foot
- C. dorsum of the foot, between the first and second toes
- D. dorsolateral side of the foot and little (5th) toe
- E. anterolateral side of the leg

1	B			31	D			61	B			91	E
2	E			32	A			62	D			92	D
3	C			33	E			63	B			93	B
4	D			34	D			64	C			94	C
5	D			35	A			65	A			95	C
6	B			36	C			66	C			96	B
7	E			37	C			67	D			97	B
8	A			38	D			68	E			98	E
9	A			39	B			69	D			99	B
10	A			40	D			70	E			100	D
11	C			41	A			71	C			101	C
12	B			42	E			72	C			102	B

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13	B			43	C			73	B			103	A
14	C			44	B			74	E			104	C
15	D			45	C			75	A			105	C
16	A			46	D			76	B			106	B
17	C			47	C			77	C			107	C
18	C			48	C			78	E				
19	A			49	B			79	C				
20	A			50	C			80	A				
21	B			51	C			81	E				
22	C			52	A			82	B				
23	A			53	E			83	D				
24	D			54	D			84	B				
25	B			55	C			85	A				
26	B			56	A			86	A				
27	B			57	C			87	B				
28	D			58	B			88	A				
29	B			59	E			89	D				
30	B			60	B			90	C				

Section # 02Clinically oriented Questions.Question 1-10

1.skin sensation and paralysis of muscles on the plantar aspect of the medial side of the foot. Which of the following nerves is most likely damaged?

- (A) Common peroneal
- (B) Tibial
- (C) Superfi cial peroneal
- (D) Deep peroneal
- (E) Sural

2. A patient with a deep knife wound in the buttock walks with a waddling gait that is characterized by the pelvis falling toward one side at each step. Which of the following nerves is damaged?

- (A) Obturator nerve

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- (B) Nerve to obturator internus
- (C) Superior gluteal nerve
- (D) Inferior gluteal nerve
- (E) Femoral nerve

3. A patient is unable to prevent anterior displacement of the femur on the tibia when the knee is flexed. Which of the following ligaments is most likely damaged?

- (A) Anterior cruciate
- (B) Fibular collateral
- (C) Patellar
- (D) Posterior cruciate
- (E) Tibial collateral

4. A 41-year-old man was involved in a fight and felt weakness in extending the knee joint. On examination, he was diagnosed with a lesion of the femoral nerve. Which of the following symptoms would be a result of this nerve damage?

- (A) Paralysis of the psoas major muscle
- (B) Loss of skin sensation on the lateral side of the foot
- (C) Loss of skin sensation over the greater trochanter
- (D) Paralysis of the vastus lateralis muscle
- (E) Paralysis of the tensor fasciae latae

5. A 47-year-old woman is unable to invert her foot after she stumbled on her driveway. Which of the following nerves are most likely injured?

- (A) Superficial and deep peroneal
- (B) Deep peroneal and tibial
- (C) Superficial peroneal and tibial
- (D) Medial and lateral plantar
- (E) Obturator and tibial

6. A 22-year-old patient is unable to "unlock" the knee joint to permit flexion of the leg. Which of the following muscles is most likely damaged?

- (A) Rectus femoris
- (B) Semimembranosus
- (C) Popliteus
- (D) Gastrocnemius
- (E) Biceps femoris

7. A patient presents with sensory loss on adjacent sides of the great and second toes and impaired dorsiflexion of the foot. These signs probably indicate damage to which of the following nerves?

- (A) Superficial peroneal
- (B) Lateral plantar
- (C) Deep peroneal
- (D) Sural
- (E) Tibial

8. A motorcyclist falls from his bike in an accident and gets a deep gash that severs the superficial peroneal nerve near its origin. Which of the following muscles is paralyzed?

- (A) Peroneus longus

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- (B) Extensor hallucis longus
- (C) Extensor digitorum longus
- (D) Peroneus tertius
- (E) Extensor digitorum brevis

9. A 67-year-old patient has been given a course of antibiotics by gluteal intramuscular injections after a major abdominal surgery. To avoid damaging the sciatic nerve during an injection, the needle should be inserted into which of the following areas?

- (A) Over the sacrospinous ligament
- (B) Midway between the ischial tuberosity and the lesser trochanter
- (C) Midpoint of the gemelli muscles
- (D) Upper lateral quadrant of the gluteal region
- (E) Lower medial quadrant of the gluteal region

10. A 20-year-old patient cannot flex and medially rotate the thigh while running and climbing. Which of the following muscles is most likely damaged?

- (A) Semimembranosus
- (B) Sartorius
- (C) Rectus femoris
- (D) Vastus intermedius
- (E) Tensor fasciae latae

Answers 1-10

1. The Answer is B. The common peroneal nerve divides into the deep peroneal nerve, which innervates the anterior muscles of the leg and supplies the adjacent skin of the first and second toes, and the superficial peroneal nerve, which innervates the lateral muscles of the leg and supplies the skin on the side of the lower leg and the dorsum of the ankle and foot. The sural nerve supplies the lateral aspect of the foot and the little toe.

2. The Answer is C. The superior gluteal nerve innervates the gluteus medius muscle. Paralysis of this muscle causes gluteal gait, a waddling gait characterized by a falling of the pelvis toward the unaffected side at each step. The gluteus medius muscle normally functions to stabilize the pelvis when the opposite foot is off the ground. The inferior gluteal nerve innervates the gluteus maximus, and the nerve to the obturator internus supplies the obturator internus and superior gemellus muscles. The obturator nerve innervates the adductor muscles of the thigh, and the femoral nerve supplies the flexors of the thigh.

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3. The Answer is D. The posterior cruciate ligament is important because it prevents forward displacement of the femur on the tibia when the knee is flexed. The anterior cruciate ligament prevents backward displacement of the femur on the tibia.

4. The answer is D. The femoral nerve innervates the quadratus femoris, sartorius, and vastus **muscles**. Therefore, damage to this nerve results in

paralysis of these **muscles**. The second and third lumbar nerves innervate the psoas major muscle, the sural nerve innervates the **skin** on the lateral side of the foot, the iliohypogastric nerve and superior clunial nerves supply the **skin** over the greater trochanter, and the superior gluteal nerve innervates the tensor fasciae latae.

5. The Answer is B. The deep peroneal and tibial nerves innervate the chief evertors of the foot, which are the tibialis anterior, tibialis posterior, triceps surae, and extensor hallucis longus **muscles**. The tibialis anterior and extensor hallucis longus **muscles** are innervated by the deep peroneal nerve, and the tibialis posterior and triceps surae are innervated by the tibial nerve.

6. The Answer is C. The popliteus muscle rotates the femur laterally ("unlocks" the knee) or rotates the tibia medially, depending on which bone is fixed. This action results in unlocking of the knee joint to initiate flexion of the leg at the joint. The rectus femoris flexes the thigh and extends the knee. The gastrocnemius flexes the knee and plantar flexes the foot. The semimembranosus extends the thigh and flexes and rotates the leg medially. The biceps femoris extends the thigh and flexes and rotates the leg laterally.

7. The Answer is C. The deep peroneal nerve supplies the anterior **muscles** of the leg, including the tibialis anterior, extensor hallucis longus, extensor digitorum longus, and peroneus tertius **muscles**, which dorsiflex the foot. The medial branch of the deep peroneal nerve supplies the **skin** of adjacent sides of the great and second toes, whereas the lateral branch supplies the extensor digitorum brevis and extensor hallucis brevis. The superficial peroneal nerve innervates the peroneus longus and brevis, which plantar flexes the foot, and supplies the **skin** on the side of the lower leg and the dorsum of the ankle and foot. The tibial nerve innervates the **muscles** of the posterior compartment that plantar flexes and supplies the **skin** on the heel and plantar aspect of the foot. The lateral plantar nerve innervates **muscles** and **skin** of the lateral plantar aspect of the foot. The sural nerve supplies the **skin** on the posterolateral aspect of the leg and the lateral aspect of the foot and the little toe.

8. The Answer is A. The superficial peroneal nerve supplies the peroneus longus and brevis **muscles**. Other **muscles** are innervated by the deep peroneal nerve.

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9. The Answer is D. To avoid damaging the sciatic nerve during an intramuscular injection, the clinician should insert the needle in the upper lateral quadrant of the gluteal region. The inserted needle in the lower medial quadrant may damage the pudendal and sciatic nerves. The inserted needle midway between the ischial tuberosity and the lesser trochanter may damage the sciatic and posterior femoral cutaneous nerves on the quadratus femoris. The inserted needle over the sacrospinous ligament may damage the pudendal nerve and vessels.

10. The Answer is E. The tensor fasciae latae can flex and medially rotate the thigh, so this is the muscle most likely damaged. The hamstring muscles (semitendinosus, semimembranosus, and biceps femoris) can extend the thigh and flex the leg. The sartorius can flex the thigh and leg. The rectus femoris can flex the thigh and extend the leg. The vastus intermedius can extend the leg.

Questions 11-20

11. A 21-year-old man was involved in a motorcycle accident, resulting in destruction of the groove in the lower surface of the cuboid bone. Which of the following muscle tendons is most likely damaged?

- (A) Flexor hallucis longus
- (B) Peroneus brevis
- (C) Peroneus longus
- (D) Tibialis anterior
- (E) Tibialis posterior

12. A construction worker falls feet first from a roof. He sustains a fracture of the groove on the undersurface of the sustentaculum tali of the calcaneus bone. Which of the following muscle tendons is most likely torn?

- (A) Flexor digitorum brevis
- (B) Flexor digitorum longus
- (C) Flexor hallucis brevis
- (D) Flexor hallucis longus
- (E) Tibialis posterior

13. A thoracic surgeon is going to collect a portion of the greater saphenous vein for coronary bypass surgery. He has observed that this vein runs:

- (A) Posterior to the medial malleolus
- (B) Into the popliteal vein
- (C) Anterior to the medial condyles of the tibia and femur
- (D) Superficial to the fascia lata of the thigh
- (E) Along with the femoral artery



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14. A 52-year-old woman slipped and fell and now complains of being unable to extend her leg at the knee joint. Which of the following muscles was paralyzed as a result

of this accident?

- (A) Semitendinosus
- (B) Sartorius
- (C) Gracilis
- (D) Quadriceps femoris
- (E) Biceps femoris

15. A patient experiences weakness in dorsiflexing and inverting the foot. Which of the following muscles is damaged?

- (A) Peroneus longus
- (B) Peroneus brevis
- (C) Tibialis anterior
- (D) Extensor digitorum longus
- (E) Peroneus tertius

Questions 16–20: A 62-year-old woman slips and falls on the bathroom floor. As a result, she has a posterior dislocation of the hip joint and a fracture of the neck of the femur.

16. Rupture of the ligamentum teres capitis femoris may lead to damage to a branch of which of the following arteries?

- (A) Medial circumflex femoral
- (B) Lateral circumflex femoral
- (C) Obturator
- (D) Superior gluteal
- (E) Inferior gluteal

17. Fracture of the neck of the femur results in avascular necrosis of the femoral head, probably resulting from lack of blood supply from which of the following arteries?

- (A) Obturator
- (B) Superior gluteal
- (C) Inferior gluteal
- (D) Medial femoral circumflex
- (E) Lateral femoral circumflex

18. If the acetabulum is fractured at its posterosuperior margin by dislocation of the hip joint, which of the following bones could be involved?

- (A) Pubis
- (B) Ischium
- (C) Ilium
- (D) Sacrum
- (E) Head of the femur

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19. The woman experiences weakness when abducting and medially rotating the thigh after this accident. Which of the following muscles is most likely damaged?

- (A) Piriformis
- (B) Obturator internus
- (C) Quadratus femoris
- (D) Gluteus maximus
- (E) Gluteus minimus

20. The woman undergoes hip surgery. If all of the arteries that are part of the cruciate anastomosis of the upper thigh are ligated, which of the following arteries maintains blood flow?

- (A) Medial femoral circumflex
- (B) Lateral femoral circumflex
- (C) Superior gluteal
- (D) Inferior gluteal
- (E) First perforating

Answers 11-20

11. The Answer is C. The groove in the lower surface of the cuboid bone is occupied by the tendon of the peroneus longus muscle. The flexor hallucis longus tendon occupies a groove on the posterior surface of the body of the talus and a groove on the inferior surface of the calcaneus during its course. The tibialis posterior muscle tendon occupies the medial malleolar groove of the tibia. Other muscle tendons are not in the groove of the tarsal bones.

12. The Answer is D. The tendon of the flexor hallucis longus muscle occupies first the groove on the posterior surface of the talus and then the groove on the undersurface of the sustentaculum tali. None of the other tendons would have been affected in such an injury.

13. The Answer is D. The greater saphenous vein ascends superficial to the fascia lata. It courses anterior to the medial malleolus and posterior to the medial condyles of the tibia and femur and terminates in the femoral vein by passing through the saphenous opening. The small saphenous vein drains into the popliteal vein. The greater saphenous vein does not run along with the femoral artery.

14. The Answer is D. The quadriceps femoris muscle includes the rectus femoris muscle and the vastus medialis, intermedialis, and lateralis muscles. They extend the leg at the knee joint. The semitendinosus, semimembranosus, and biceps femoris muscles (the hamstrings) extend the thigh and flex the leg. The sartorius and gracilis muscles can flex the thigh and the leg.

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15. The Answer is C. The tibialis anterior can dorsiflex and invert the foot. The peroneus longus and brevis **muscles** can plantar flex and evert the foot, the peroneus tertius can dorsiflex and evert the foot, and the extensor digitorum longus can dorsiflex the foot and extend the toes.

16. The Answer is C. The obturator artery gives rise to an acetabular branch that runs in the round ligament of the head of the femur.

17. The Answer is D. In adults, the chief arterial supply to the head of the femur is from the branches of the medial femoral circumflex artery. The lateral femoral circumflex artery may supply the femoral head by anastomosing with the medial femoral circumflex artery. The posterior branch of the obturator artery gives rise to the artery of the head of the femur, which runs in the round ligament of the femoral head and is usually insufficient to supply the head of the femur in adults but is an important source of blood to the femoral head in children. The superior and inferior gluteal arteries do not supply the head of the femur.

18. The Answer is C. The acetabulum is a cup-shaped cavity on the lateral side of the hip bone and is formed superiorly by the ilium, posteroinferiorly by the ischium, and anteromedially by the pubis. The sacrum and the head of the femur do not participate in the formation of the acetabulum.

19. The Answer is E. The gluteus medius or minimus abducts and rotates the thigh medially. The piriformis, obturator internus, quadratus femoris, and gluteus maximus **muscles** can rotate the thigh laterally.

20. The Answer is C. The superior gluteal artery does not participate in the cruciate anastomosis of the thigh. The inferior gluteal artery, transverse branches of the medial and lateral femoral circumflex arteries, and an ascending branch of the first perforating artery form the cruciate anastomosis of the thigh.

Questions :21 – 30

21. A 34-year-old woman sustains a deep cut on the dorsum of the foot just distal to her ankle joint by a falling kitchen knife. A physician in the emergency department has ligated the dorsalis pedis artery proximal to the injured area. Which of the following conditions most likely occurs as a result of the injury?

- (A) Ischemia in the peroneus longus muscle
- (B) Aneurysm in the plantar arterial arch
- (C) Reduction of blood flow in the medial tarsal artery
- (D) Low blood pressure in the anterior tibial artery
- (E) High blood pressure in the arcuate artery

22. A patient experiences paralysis of the muscle that originates from the femur and contributes directly to the stability of the knee joint. Which of the following muscles is involved?

- (A) Vastus lateralis

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- (B) Semimembranosus
- (C) Sartorius
- (D) Biceps femoris (long head)
- (E) Rectus femoris

23. A patient is involved in a motorcycle wreck that results in avulsion of the skin over the anterolateral leg and ankle. Which of the following structures is most likely destroyed with this type of injury?

- (A) Deep peroneal nerve
- (B) Extensor digitorum longus muscle tendon
- (C) Dorsalis pedis artery
- (D) Great saphenous vein
- (E) Superficial peroneal nerve

24. A knife wound penetrates the superficial vein that terminates in the popliteal vein. Bleeding occurs from which of the following vessels?

- (A) Posterior tibial vein
- (B) Anterior tibial vein
- (C) Peroneal vein
- (D) Great saphenous vein
- (E) Lesser saphenous vein

25. A 10-year-old boy falls from a tree house. The resultant heavy compression of the sole of his foot against the ground caused a fracture of the head of the talus. Which of the following structures is unable to function normally?

- (A) Transverse arch
- (B) Medial longitudinal arch
- (C) Lateral longitudinal arch
- (D) Tendon of the peroneus longus
- (E) Long plantar ligament

26. A 24-year-old woman complains of weakness when she extends her thigh and rotates it laterally. Which of the following muscles is paralyzed?

- (A) Obturator externus
- (B) Sartorius
- (C) Tensor fasciae latae
- (D) Gluteus maximus
- (E) Semitendinosus

27. A patient with hereditary blood clotting problems presents with pain in the back of her knee. An arteriogram reveals a blood clot in the popliteal artery at its proximal end. Which of the following arteries will allow blood to reach the foot?

- (A) Anterior tibial
- (B) Posterior tibial
- (C) Peroneal
- (D) Lateral circumflex femoral
- (E) Superior medial genicular

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28. A 72-year-old woman complains of a cramp-like pain in her thigh and leg. She was diagnosed as having a severe intermittent claudication. Following surgery, an infection was found in the adductor canal, damaging the enclosed structures. Which of the following structures remains intact?

- (A) Femoral artery
- (B) Femoral vein
- (C) Saphenous nerve
- (D) Great saphenous vein
- (E) Nerve to the vastus medialis

29. A basketball player was hit in the thigh by an opponent's knee. Which of the following arteries is likely to compress and cause ischemia because of the bruise and damage to the extensor muscles of the leg?

- (A) Popliteal
- (B) Deep femoral
- (C) Anterior tibial
- (D) Posterior tibial
- (E) Peroneal

30. An elderly woman fell at home and fractured the greater trochanter of her femur. Which of the following muscles would continue to function normally?

- (A) Piriformis
- (B) Obturator internus
- (C) Gluteus medius
- (D) Gluteus maximus
- (E) Gluteus minimus

Answers and Explanations : 21-30

21. The Answer is C. Reduction of blood flow in the medial tarsal artery occurs because it is a branch of the dorsalis pedis artery, which begins at the ankle joint as the continuation of the anterior tibial artery. The anterior tibial and peroneal arteries supply the peroneus longus muscle. The deep plantar arterial arch is formed mainly by the lateral plantar artery. Blood pressure in the anterior tibial artery should be higher than normal. The arcuate artery should have a low blood pressure because it is a terminal branch of the dorsalis pedis artery.

22. The Answer is A. The vastus lateralis muscles arise from the femur and all the other muscles originate from the hip (coxal) bone. The biceps femoris inserts on the fibula, and other muscles insert on the tibia; thus, all of them contribute to the stability of the knee joint.

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on the tibia, and other **muscles** insert on the tibia; thus, all of them contribute to the stability of the knee joint.

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23. The Answer is E. The superficial peroneal nerve emerges between the peroneus longus and peroneus brevis **muscles** and descends superficial to the extensor retinaculum of the ankle on the anterolateral side of the leg and ankle, innervating the **skin** of the lower leg and foot. The great saphenous vein begins at the medial end of the dorsal venous arch of the foot and ascends in front of the medial malleolus and along the medial side of the tibia along with the saphenous nerve. Other structures pass deep to the extensor retinaculum.

24. The Answer is E. The lesser (small) saphenous vein ascends on the back of the leg in company with the sural nerve and terminates in the popliteal vein. The peroneal vein empties into the posterior tibial vein. The anterior and posterior tibial veins are deep veins and join to form the popliteal vein. The great saphenous vein drains into the femoral vein.

25. The Answer is B. The keystone of the medial longitudinal arch of the foot is the head of the talus, which is located at the summit between the sustentaculum tali and the navicular bone. The medial longitudinal arch is supported by the spring ligament and the tendon of the flexor hallucis longus muscle. The cuboid bone serves as the keystone of the lateral longitudinal arch, which is supported by the peroneus longus tendon and the long and short plantar ligaments. The transverse arch is formed by the navicular, three cuneiform, the cuboid, and five metatarsal bones and is supported by the peroneus longus tendon and the transverse head of the adductor hallucis.

26. The Answer is D. The gluteus maximus can extend and rotate the thigh laterally. The obturator externus rotates the thigh laterally. The sartorius can flex both the hip and knee joints. The tensor fasciae latae can flex and medially rotate the thigh. The semitendinosus can extend the thigh and medially rotate the leg.

27. The Answer is D. If the proximal end of the popliteal artery is blocked, blood may reach the foot by way of the descending branch of the lateral circumflex femoral artery, which participates in the anastomosis around the knee joint. Other blood vessels are direct or indirect branches of the popliteal artery.

28. The Answer is D. The great saphenous nerve remains intact because it is not in the adductor canal. The adductor canal contains the femoral vessels, the saphenous nerve, and the nerve to the vastus medialis.

29. The Answer is C. A muscular spasm or hypertrophy of the extensor **muscles** of the leg may compress the anterior tibial artery, causing ischemia. The popliteal artery supplies **muscles** of the popliteal fossa. The deep

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femoral artery supplies deep **muscles** of the thigh. The posterior tibial and peroneal arteries supply **muscles** of the posterior and lateral compartments of the leg.

30. The Answer is D. The gluteus maximus is inserted into the gluteal tuberosity of the femur and the iliotibial tract. All of the other **muscles** insert on the greater trochanter of the femur, and their **functions** are impaired.

Questions : 31- 40

Questions 31–35: A 20-year-old college student receives a severe blow on the inferolateral side of the left knee joint while playing football. Radiographic examination reveals a fracture of the head and neck of the fibula.

31. Which of the following nerves is damaged?

- (A) Sciatic
- (B) Tibial
- (C) Common peroneal
- (D) Deep peroneal
- (E) Superficial peroneal

32. After injury to this nerve, which of the following muscles could be paralyzed?

- (A) Gastrocnemius
- (B) Popliteus
- (C) Extensor hallucis longus
- (D) Flexor digitorum longus
- (E) Tibialis posterior

33. If the lateral (fibular) collateral ligament is torn by this fracture, which of the following conditions may occur?

- (A) Abnormal passive abduction of the extended leg
- (B) Abnormal passive adduction of the extended leg
- (C) Anterior displacement of the femur on the tibia
- (D) Posterior displacement of the femur on the tibia
- (E) Maximal flexion of the leg

34. Which of the following arteries could also be damaged by this fracture?

- (A) Popliteal
- (B) Posterior tibial
- (C) Anterior tibial
- (D) Peroneal
- (E) Lateral inferior genicular

35. Which of the following conditions would occur from this fracture?

- (A) Ischemia in the gastrocnemius

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- (B) Loss of plantar flexion
- (C) Trendelenburg's sign
- (D) Anterior tibial compartment syndrome
- (E) Flat foot

36. A construction worker is hit on the leg with a concrete block and is subsequently unable to plantar flex and invert his foot. Which of the following muscles is most likely damaged?

- (A) Extensor digitorum longus
- (B) Tibialis anterior
- (C) Tibialis posterior
- (D) Peroneus longus
- (E) Peroneus brevis

37. The obturator nerve and the sciatic (tibial portion) nerve of a 15-year-old boy are transected as a result of a motorcycle accident. This injury would result in complete paralysis of which of the following muscles?

- (A) Rectus femoris
- (B) Biceps femoris, short head
- (C) Pectineus
- (D) Adductor magnus
- (E) Sartorius

38. A 24-year-old woman presents to her physician with weakness in flexing the hip joint and extending the knee joint. Which scenario?

- (A) Sartorius
- (B) Gracilis
- (C) Rectus femoris
- (D) Vastus medialis
- (E) Semimembranosus

39. A 17-year-old boy was stabbed during a gang fight resulting in transection of the obturator nerve. Which of the following muscles is completely paralyzed?

- (A) Pectineus
- (B) Adductor magnus
- (C) Adductor longus
- (D) Biceps femoris
- (E) Semimembranosus

40. A 32-year-old carpenter fell from the roof. The lateral longitudinal arch of his foot was flattened from fracture and displacement of the keystone for the arch. Which of the following bones is damaged?

- (A) Calcaneus
- (B) Cuboid bone
- (C) Head of the talus
- (D) Medial cuneiform
- (E) Navicular bone

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Answers and Explanations : 31-40

31. The Answer is C. The common peroneal nerve is vulnerable to injury as it passes behind the head of the fibula and then winds around the neck of the fibula and pierces the peroneus longus muscle, where it divides into the deep and superficial peroneal nerves. In addition, the deep and superficial peroneal nerves pass superficial to the neck of the fibula in the substance of the peroneus longus muscle and are less susceptible to injury than the common peroneal nerve. Other nerves are not closely associated with the head and neck of the fibula.

32. The Answer is C. The extensor hallucis longus is innervated by the deep peroneal nerve, whereas other muscles are innervated by the posterior tibial nerve.

33. The Answer is B. The lateral (fibular) collateral ligament prevents adduction at the knee. Therefore, a torn lateral collateral ligament can be recognized by abnormal passive adduction of the extended leg. Abnormal passive abduction of the extended leg may occur when the medial (tibial) collateral ligament is torn. The anterior cruciate ligament prevents posterior displacement of the femur on the tibia; the posterior cruciate ligament prevents anterior displacement of the femur on the tibia. In addition, the posterior cruciate ligament is taut when the knee is fully flexed.

34. The Answer is C. The anterior tibial artery, which arises from the popliteal artery, enters the anterior compartment by passing through the gap between the fibula and tibia at the upper end of the interosseous membrane. The other arteries would not be affected because they are not closely associated with the head and neck of the fibula.

35. The Answer is D. Anterior tibial compartment syndrome is characterized by ischemic necrosis of the muscles of the anterior tibial compartment of the leg resulting from damage to the anterior tibial artery. The gastrocnemius receives blood from sural branches of the popliteal artery. Loss of plantar flexion is due to necrosis of the posterior muscles of the leg, which are supplied by the posterior tibial and peroneal arteries. Trendelenburg's sign is caused by weakness or paralysis of the gluteus medius and minimus muscles. Flat foot results from the collapse of the medial longitudinal arch of the foot.

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36. The Answer is C. The tibialis posterior can plantar flex and invert the foot. The extensor digitorum longus can dorsiflex and evert the foot, the tibialis anterior can dorsiflex and invert the foot and the peroneus longus and brevis can plantar flex and evert the foot.

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36. The Answer is C. The tibialis posterior can plantar flex and invert the foot. The extensor digitorum longus can dorsiflex and evert the foot, the tibialis anterior can dorsiflex and invert the foot, and the peroneus longus and brevis can plantar flex and evert the foot.

37. The Answer is D. The adductor magnus is innervated by both the obturator and sciatic (tibial portion) nerves. Hence, a lesion here could cause paralysis. The rectus femoris and sartorius are innervated by the femoral nerve. The biceps femoris long head is innervated by the tibial portion of the sciatic nerve, whereas the short head is innervated by the common peroneal portion of the sciatic nerve. The pectineus is innervated by both the femoral and obturator nerves.

38. The Answer is C. The rectus femoris flexes the thigh and extends the leg. The sartorius can flex both the hip and knee joints. The gracilis adducts and flexes the thigh and flexes the leg, the vastus medialis extends the knee joint, and the semimembranosus extends the hip joint and flexes the knee joint.

39. The Answer is C. The adductor longus is innervated by only the obturator nerve. Thus, injury here could completely paralyze the adductor longus. The pectineus is innervated by both the obturator and femoral nerves. The adductor magnus is innervated by both the obturator nerve and tibial part of the sciatic nerve. The biceps femoris is innervated by the tibial portion (long head) and common peroneal portion (short head) of the sciatic nerve. The semimembranosus is innervated by the tibial portion of the sciatic nerve.

40. The Answer is B. The keystone for the lateral longitudinal arch is the cuboid bone, whereas the keystone for the medial longitudinal arch is the head of the talus. The calcaneus, navicular, and medial cuneiform bones form a part of the medial longitudinal arch, but they are not keystones. The calcaneus also forms a part of the lateral longitudinal arch.

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