Subject: Anatomy II

Mid Term Assignments.

Semester: DPT 2nd.

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Section A.

Note: Highlight the correct option of the given MCQs from section A. attempt all 3 questions from section B.

1. **Out of the following bony landmarks to which the Ligamentum teres attached?**
2. intertrochanteric line
3. trochanteric crest
4. Fovea capitis
5. Greater trochanter
6. **Neck of the femur connects the head of the femur with the shaft. It is cylindrical, projecting in a superior and medial direction. It is set at an angle of \_\_\_\_\_\_\_\_\_\_\_\_degrees to the shaft.**
7. 156
8. 170
9. 135
10. 101
11. **The proximal area of the femur forms the hip joint with the acetabulum of the pelvis. It consists of a head and neck, and two bony processes the greater and lesser trochanters. There are also two bony ridges connecting the two trochanters; the intertrochanteric line anteriorly and the trochanteric crest posteriorly. Out of all these proximal bony landmarks which one is the most lateral palpable bony landmark?**
12. Greater trochanter
13. Lesser trochanter
14. The intertrochanteric line
15. Trochanteric crest.
16. **\_\_\_\_\_\_\_\_\_\_\_\_is the site of attachment for iliopsoas muscle.**
17. Greater trochanter
18. Lesser trochanter
19. The intertrochanteric line
20. Trochanteric crest.
21. **Neck of femur fractures are increasingly common and tend to be sustained by the elderly population as a result of low energy falls in the presence of osteoporotic bone. Classically, the distal fragment is pulled upwards and\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
22. Medially rotated
23. Externally rotated
24. No rotation occurs
25. None of the above
26. **Regarding neck of the femur fracture the medial femoral circumflex artery can be damage in\_\_\_\_\_\_\_\_\_\_**
27. Intracapsular fracture
28. Shaft fracture
29. Extracapsular fracture
30. Femoral epicondylar fracture
31. **The shaft of the femur descends in slight\_\_\_\_\_\_\_\_\_\_\_\_ for stability.**
32. Lateral direction
33. Medial direction
34. Posterior direction
35. Diagonal direction
36. **Mr. A met with an accident and his right femur broke at 3 different places. The cut was a clean break and the four pieces were put back together in their original place. What kind of fracture did he have?**
37. Contusion
38. Hairline Fracture
39. Multiple Fracture
40. Simple Fracture
41. **A closed femoral shaft fracture can result in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_blood loss.**
42. 10-15ml
43. 100-150ml
44. 1000-1500ml
45. 10000-15000ml
46. **Which of the following is the medial bone of lower leg?**
47. Patella
48. Fibula
49. Tibia
50. Medial cuboid
51. **The shaft of the tibia is prism-shaped, with\_\_\_\_\_\_\_\_\_\_\_**
52. One border and one surface
53. Two borders and one surface
54. Three borders and two surfaces
55. Three borders and three surfaces
56. **The calcaneus is often fractured as a result of \_\_\_\_\_**
57. Distraction
58. Axial loading
59. Walking
60. Setting
61. **The depth of the acetabulum is raised by the\_\_\_\_\_\_**
62. Fovea captious
63. Capsule of hip joint
64. acetabular labrum
65. ischial Bursae
66. **The most powerful ligament of hip joint is?**
67. Iliofemoral ligament
68. Pubofemoral ligament.
69. Ischiofemoral ligament.
70. Transverse acetabular ligament
71. **The hip joint is supplied by the branches of the following arteries EXCEPT**:
72. Medial circumflex femoral artery.
73. Lateral circumflex femoral artery.
74. Radial artery.
75. Superior gluteal artery.

**Section B**

***Q:1*** *Describe Hip joint anatomy. (your answer should cover these headings, (****Articular surfaces of hip joint****,* ***Ligaments of joint, Stability of hip joint, Blood and nerve supply****).*

**Ans:**

**Hip Joint:** Hip joint is defined as “It is a synovial articulation between the head of the femur and the acetabulum of the pelvic bone”.

**Function of Hip Joint:**

* When a person is standing, walking, running; it support the weight of whole body.
* Hip joint also transfers and tolerates forces and pressures made by lower limb (especially femur)
* It provides structural stability to the musculo-skeletal system.

**Articular surface of hip joint**:

* The spherical head of the femur
* The lunate surface of the acetabulum of the pelvic bone
* The lunate surface is covered by hyaline cartilage and is broadest superiorly
* Except for the fovea, the head of the femur is also covered by hyaline cartilage

**Ligaments of hip joint:**

* Capsular ligament (joint capsule)
* Iliofemoral ligament (most powerful)
* Pubofemoral ligament
* Ischiofemoral ligament
* Transverse acetabular ligament
* Acetabular labrum
* Ligamentum teres femoris

**Stability of hip joint:**

The firmness of the hip joint is supplied by the following factors which help prevent its dislocation:

* The depth of the acetabulum and narrowing of its mouth by the acetabular labrum
* 3 powerful ligaments (iliofemoral, pubofemoral and ischiofemoral) reinforcing the capsule of the joint
* The strength of the surrounding muscles, example, gluteus medius, gluteus minimus etc.
* Length and obliquity of the neck of femur

**Blood supply of hip joint:**

The hip joint is supplied by the branches of following arteries:

* Obturator artery
* Medial and lateral circumflex femoral arteries
* Superior and inferior gluteal arteries

**Nerve supply of hip joint:**

Following are the nerve supply of hip joint is innervated by articular branches from:

* Femoral nerve
* Superior gluteal nerve (superiorly and posteriorly)
* Obrurator nerve (anteriorly and inferiorly)
* Quadratus femoris
* Sciatic nerve

***Q:2*** *Explain the following in detail.*

1. *Cruciate ligaments*
2. *Menisci*

***Ans:***

**Cruciate Ligaments:**

* It is also known as cruciform ligaments
* They are pairs of ligaments arranged like a letter X
* They occur in joints of the body such as knee joint and the atlanto-axial joint
* It is also termed when tibia and femur cross each other. There are two ligaments, which connects femur and tibia. These two ligaments are:

**I.** Anterior cruciate ligament - ACL

**II.** Posterior cruciate ligament - PCL

**Anterior Cruciate Ligament (ACL):**

The anterior cruciate ligament (ACL) can torn by hyperextension of the knee joint or by the application of the large force to the back of the knee with the joint partly flexed. Following are the sub heading in ACL:

* **ACL Injury:** Sprained, torn; athletes who play high demand sports, about half of all injuries to the ACL occur along with damage to other structure in the knee
* **Causes of ACL Tears / Sprains:** Changing direction rapidly, stopping suddenly, slowing down while running, landing from a jump incorrectly, direct contact or collision are the causes for ACL sprains
* **Anterior Drawer Test:** To test this, we need to perform an anterior drawer test; where we attempt to pull the tibia forward if it moves the ligament has been torn.

**Posterior Cruciate Ligament (PCL):**

The posterior cruciate ligament is located in the back of the knee, it is one of the several ligament that connects the femur and keeps the tibia from moving backward too far

* **PCL Injury:** The most common mechanism of PCL damage is the “dashboard injury”. This occurs when the knee is flexed and a large force is applied to the shins, pushing the tibia posteriorly. This is often seen in car accidents where the knee hits dashboard.
* **PCL Test:** To test this we need to perform posterior drawer test; where clinician holds the knee in flexed position and pushes the tibia posteriorly if there is moment, the ligament has been torn.

**Menisci:**

It is a piece of cartilage that protects and provides cushion the joint surface and bone ends (particularly in knee; femur and tibia). There are two types of menisci in each knee joint:

* Medial menisci
* Lateral menisci

**Medial Menisci:**

* It is attached at both end of inter condylar area of the tibia
* It is C shaped

**Lateral Menisci:**

* It is in circular shaped and cover larger portion of the articular surface than medial menisci
* It is fabrocartilaginious band that spans the lateral side of interior of the knee joint; it is one of the two menisci of the knee and the other being the medial meniscus

**Functions:**

* It act to disperse the weight of the body
* It reduces friction during movement
* Since condyles of femur & tibia meet at a point which changes during flexion and extension, the menisci spread the load of the body weight

***Q:3*** *Write down a comprehensive note on medial and lateral ligaments of ankle joint*

**Ans:**

**Ankle Joint:** It is also called talocrural joint. It is a synovial joint located in the lower limb. It is formed by the bones of the leg (tibia and fibula) and the foot (talus). Functionally, it is a hinge type joint, permitting dorsiflexion and plantarflexion of the foot.

**Ligaments:** It is a short band of tough, flexible fibrous connective tissue which connects two bones or cartilages or holds together a joint. There are two main sets of the Ligaments:

* Medial Ligament
* Lateral Ligament
* **Medial Ligaments:**
1. It is also known Deltoid Ligament
2. It is attached to medial malleolus (a bony prominence projecting from the medial aspect of the **distal tibia**)
3. It has 4 superficial components such as; the **tibiocalcaneal** ligament, the **tibionavicular** ligament, the **posterior superficial tibiotalar** ligament and the **tibiospring** ligament
4. The primary action of the medial ligament is to resist over-eversion of the foot.
* **Lateral Ligaments:**
1. It originate from the lateral malleolus (a bony prominence projecting from the lateral aspect of the **distal fibula**)
2. It has three distant and separate ligaments:
**Anterior Talofibular:** Distance between the lateral malleolus & lateral aspects of the talus.

**Posterior Talofibular:** Distance between the lateral malleolus & the posterior aspects of talus.
**Calcaneofibular:** Distance between the lateral malleolus and the calcaneus