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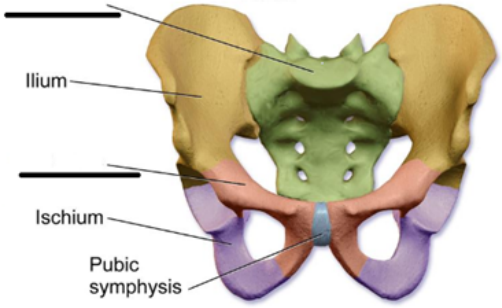
Unit 7 - Week 5

Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2018-09-12, 23:59 IST.

1) ***1 point***



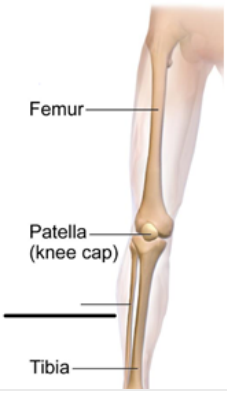
Mark the missing names of the anatomical parts (posterior to anterior) of the above figure from the list below

- Sacrum and Pubis
- Sacrum and Anterior Iliac Spine
- Posterior Iliac Spine and Sacrum
- Pubis and Sacrum

No, the answer is incorrect.
Score: 0

Accepted Answers:
Sacrum and Pubis

2) ***1 point***

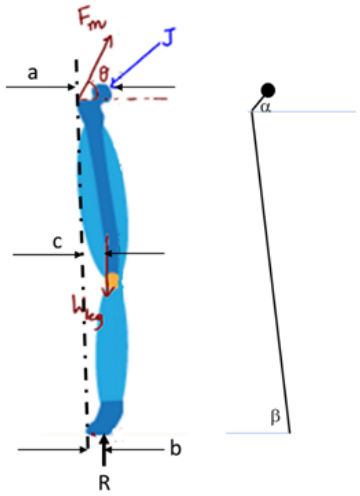


- Humerus
- Sternum
- Clavicle

No, the answer is incorrect.
Score: 0

Accepted Answers:
Fibula

3) ***1 point***



Using the free body diagram of single leg stance shown above to answer questions 3-5. Given: W_{leg} = 0.2W, a=7cm, b=17.8cm, c=10.2cm, β = 80˚, θ=70˚

Calculate F_m, assuming that the angle a made by the femoral neck with the horizontal is 45°

- 4.6W
- 3.2W
- 1.1W
- 2.4W

No, the answer is incorrect.
Score: 0

Accepted Answers:
2.4W

4) Calculate the net joint reaction force ***1 point***

- 4.6W
- 3.2W
- 1.1W
- 2.4W

No, the answer is incorrect.
Score: 0

Accepted Answers:
3.2W

5) Calculate the angle made by the net joint reaction force with the horizontal ***1 point***

- 45^0
- 60^0
- 75^0
- 90^0

No, the answer is incorrect.
Score: 0

Accepted Answers:
75^0

6) Carrying a load on one side increases the loads on the hip on the other supporting side in single stance **1 point**

- True, the joint has to produce the necessary force for static equilibrium
- False, the supporting side need not balance the external force
- True, the muscle has to produce the necessary counter moment for static equilibrium, which increases joint force
- False, the hip does not bear the load but the thigh does

No, the answer is incorrect.
Score: 0

Accepted Answers:
True, the muscle has to produce the necessary counter moment for static equilibrium, which increases joint force

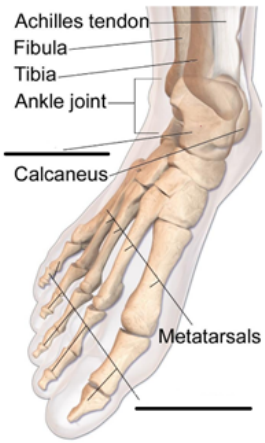
7) People with weak hip abductor muscles and/or painful hip joints lean towards the loading side in single stance. **1 point**

- False, that will increase joint reaction force in their already painful hip joint
- True, the moment that needs to be balanced decreases, thereby reducing the muscle force required
- False, the iliopsoas would balance for the weak hip abductors and hence they do not have to lean
- True, such a compensatory gait would help reduce muscle force since it decreases external force in vertical direction

No, the answer is incorrect.
Score: 0

Accepted Answers:
True, the moment that needs to be balanced decreases, thereby reducing the muscle force required

8) **1 point**



Match the missing anatomical terms in the above figure from the list below.

- Talus
- Carpal
- Phalange
- Pisiform

No, the answer is incorrect.
Score: 0

Accepted Answers:
Talus
Phalange

9) Which of the following best describe(s) the function(s) of patella **1 point**

- [ ] Enhances the leverage of the quadriceps tendon.
- [ ] Increases the moment generated by quadriceps about the knee joint.
- [ ] Protects the anterior aspect of the knee joint from physical trauma.
- [ ] Increases the range of motion of the knee joint.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Enhances the leverage of the quadriceps tendon.
Increases the moment generated by quadriceps about the knee joint.
Protects the anterior aspect of the knee joint from physical trauma.

10)The motion of the upper surfaces of the toes moving towards the shin bone is known as _____. ***1 point***

- ( ) Dorsiflexion
- ( ) Plantarflexion
- ( ) Extension
- ( ) Upward rotation

No, the answer is incorrect.
Score: 0

Accepted Answers:
Dorsiflexion

11)A person is performing knee strengthening exercises with ankle weights in a quasistatic manner as shown above. Find the force on the patellofemoral joint when the shank is inclined at 30^0 to the vertical given the following data: the weight of the leg is 150N and an ankle weight of 50N is being used, the patellar tendon inserts on the shank at a distance of 12 cm from the proximal end at an angle of 15^0 to the axis of the shank, and the quadriceps tendon acts parallel to the thigh. Assume the length of the leg is 50 cm and its weight acts at its mid-pt. ***1 point***

- ( ) 525N acting at an angle of 52.5^0 to the horizontal
- ( ) 1006N acting at an angle of 75^0 to the horizontal
- ( ) 1225N acting at an angle of 52.5^0 to the horizontal
- ( ) 1725N acting at an angle of 60^0 to the horizontal

No, the answer is incorrect.
Score: 0

Accepted Answers:
1225N acting at an angle of 52.5^0 to the horizontal

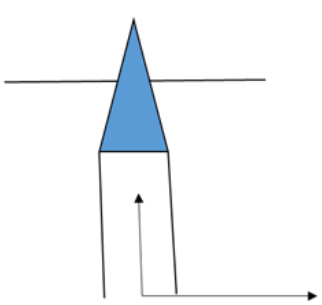
12)The human body is represented as 3 rods, each of mass m and length L, calculate the x and y coordinates of the centre of mass of the system shown in the figure below. Let the angle made by the shank segment with the x axis be θ. Assume the mass of each link to be uniformly distributed except for the vertical link (equivalent of the head, arms and torso) whose centre of mass is at L/3 from its distal end. ***1 point***

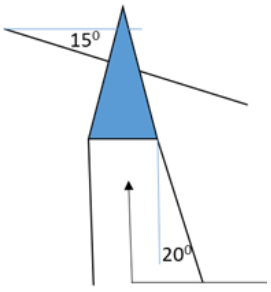
- L(5cosθ-3)/6, L(2+15sinθ)/18
- L(5cosθ-3)/2, L(8+15sinθ)/6
- L(7cosθ-4)/3, L(8+9sinθ)/3
- L(cosθ-2)/3, L(7+15sinθ)/3

No, the answer is incorrect.
Score: 0

Accepted Answers:
L(5cosθ-3)/6, L(2+15sinθ)/18

13) ***1 point***





The new position of the COM of her arms alone will be

- Higher than and towards the right of her body as compared to the first position
- Lower than and towards the left of her body as compared to the first position
- Higher than and on the midline of her body as compared to her anatomical position
- Unchanged with respect to the COM of her arms in the first position

No, the answer is incorrect.
Score: 0

Accepted Answers:
Higher than and on the midline of her body as compared to her anatomical position
Unchanged with respect to the COM of her arms in the first position

14)For a person with hip abductor weakness, cane is used on the ***1 point***

- Same side as the weak limb
- Contralateral side of the weak limb
- Along the middle and anterior to the body
- Does not matter where it is used

No, the answer is incorrect.
Score: 0

Accepted Answers:
Contralateral side of the weak limb

15)Which joint facilitates dorsiflexion and plantarflexion? ***1 point***

- Tibiofibular joint
- Fibiotalar joint
- Tibiotalar joint
- Talocalcaneal joint

No, the answer is incorrect.
Score: 0

Accepted Answers:
Tibiotalar joint

16)What is/are the function(s) of the gastrocnemius? ***1 point***

- [ ] Ankle plantarflexor
- [ ] Knee flexor
- [ ] Ankle dorsiflexor
- [ ] Knee extensor

No, the answer is incorrect.
Score: 0

Accepted Answers:
Ankle plantarflexor
Knee flexor

17)While performing the static analysis of a person who is holding a bag in his right hand during left leg single stance, which of the following is/are true if we use a free body diagram (FBD) without the left leg? ***1 point***

- [ ] The body is a three-force member
- [ ] The body is a four-force member
- [ ] The three forces are the muscle force of gluteus medius, hip joint reaction force and weight of the person(minus his left leg)plus the weight of the bag.
- [ ] The four forces are the muscle force of gluteus medius, joint reaction force and weight of the person (minus his left leg) plus the weight of the bag

No, the answer is incorrect.
Score: 0

Accepted Answers:
The body is a three-force member
The three forces are the muscle force of gluteus medius, hip joint reaction force and weight of the person(minus his left leg)plus the weight of the bag.

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