

Human Anatomy — Biology 351

Exam #1

Please place your name on the back of the last page of this exam. You must answer *all* questions on this exam. Because statistics demonstrate that, on average, between 1-2 questions on every 50-point exam are ambiguous enough to come out “aberrant” on an item analysis, the total number of points possible on this exam is 53. However, grades will be calculated out of a possible 50 points, assuming that 1–2 questions on this exam are aberrant.

Section 1 **Position Analysis:** Read the following paragraph, and then answer the following questions in the spaces provided. (2 points each)

It is the weekend before classes start and, as is often the case, one or two parties may be found around campus. A group of physics students live in a house not far from Denkmann School. Because they are concerned about everyone’s well being they hire a taxi service to shuttle folks to and from the dorms. The taxi service is a new company in town, and it is run by a local student who has just immigrated from a former Russian republic: Andrey PickupundDropoff. As the night progresses the physic students get into an argument as to whether or not there is a Great Pumpkin. (If you read the comic strip “Peanuts” you know who this character is.) One physic student argues that there can’t be, because there is no physical way a pumpkin can (a) fly, let alone (b) fly around the world and visit every household in less than 24 hours, as some of the characters in the “Peanuts” strip believe. Because this puts such a damper on the part many students leave and call Andrey PickupundDropoff to pick them up and drop them off back at the dorms. However, two of the physic students (Steve and Andrey’s cousin Igor) continue the argument. Finally, the housemates call an end to the discussion and take both Steve and Igor out into the front yard and force they to lie in the grass until they agree to stop the argument. Igor and Steve are both in the same position:

- Lying on their backs in the grass, face up.
- Right lower appendages out to the side (as if they were making a snow angel), knees straight.
- Thigh of the left lower appendage (approximately) perpendicular to the ground, knees bent such that the soles of their feet are flat on the ground.
- Right upper appendages straight out to the side, arms parallel to the ground, elbow bent such that their forearms are perpendicular to the ground. Their wrists are straight, fingers straight and pointing to the sky.
- Left upper appendages such that their arms are straight down at their sides, resting on the ground. Their elbows, wrists and fingers are bent such that their fingers are touching his shoulder.
- Their heads are bent in such a way as they are looking back towards their housemates that are standing near their heads as Igor and Steve beg for forgiveness.

Go to the next page to begin answering the position analysis questions

- _____ 1. Their right knees are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 2. Their left knees are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 3. Their left hips are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 4. Their right hips are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 5. Their cervical vertebrae are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 6. Their right elbows are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral

- _____ 7. Their right wrists are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral
- _____ 8. Their left shoulders are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral
- _____ 9. Their left elbows are
- flexed
 - extended
 - medially rotated
 - laterally rotated
 - abducted
 - adducted
 - plantar flexed
 - dorsiflexed
 - inverted
 - everted
 - neutral
- _____ 10. Their cervical vertebrae rotated about what axis?
- horizontal
 - vertical
 - anterior-posterior
 - none of the above, in that it was in the neutral position.

- _____ 11. Their right shoulders rotated about what axis?
- horizontal
 - vertical
 - anterior-posterior
 - none of the above, in that it was in the neutral position.
- _____ 12. Their right elbows rotated about what axis?
- horizontal
 - vertical
 - anterior-posterior
 - none of the above, in that it was in the neutral position.
- _____ 13. Their right wrists rotated about what axis?
- horizontal
 - vertical
 - anterior-posterior
 - none of the above, in that it was in the neutral position.

Section 2: Define the following terms in the space provided. (2 points each)

14. ipsilateral

15. epiphysis

16. circumduction.

Section 3: Answer the following questions in the space provided. Each question is worth the number of points indicated.

17. Draw and label the three classes of levers. (6 points)

18. Skeletal muscles may play 4 roles in the production of movement. List and define these four roles. (4 points)
19. In our discussion of arthrology (the study of joints) we mentioned fibrous, cartilaginous and synovial joints.
- (a) List the three types of fibrous joints and give a *short* (approximately one line) anatomical description of each. (3 points)
- (b) List the two types of cartilaginous joints and give a *short* (approximately one line) anatomical description of each. (2 points)

Section 4: If the following statements are true place a (+) in the space provided; if the statement is false place a (O) in the space provided. (2 points each)

- _____ 20. A synovial joint has all of the following characteristics: joint cavity filled with synovial fluid, articular cartilage, a joint capsule, and a joint capsule lined by a membrane termed a synovial membrane.
- _____ 21. A suture, gomphosis and symphysis are all examples of fibrous joints.
- _____ 22. In immature bones hematopoiesis occurs only in the distal ends of the humerus and femur, as well as the sternum, ribs, and vertebrae.