

University of Ottawa

ANP 11060A

Midterm #2

Date: March 5, 2013
Time: 13:00 h
Duration: 1 hr 20 min

Instructor:
Dr. J. Carnegie

INSTRUCTIONS:

1. 43 multiple choice questions (1 mark/1 correct answer per question) plus 19 marks for T/F questions, diagram labeling and fill-in-the-blank questions.
2. Please use the computer sheet for the multiple choice questions, but answer the remaining questions right on the exam itself.
3. Please put your name and student number at the top of this page and on your computer sheet and hand in everything when you have finished.
4. Make sure this exam is complete. This exam contains **11** pages. The excuse of missing a page will not be accepted after the examination.

1. Damage to the auditory association area would result in an inability to:

- A. hear
- B. be aware of the loudness of a sound
- C. repeat what one hears
- D. hearing with both ears
- E. understand what one hears

2. When neurons in Wernicke's area send impulses to neurons in Broca's area, the white matter tracts utilized are:

- A. commissural fibers
- B. projection fibers
- C. association fibers
- D. anterior funiculus fibers

3. White matter of the nervous system is composed of:

- A. aggregations of myelinated axons
- B. aggregations of neuron cell bodies
- C. aggregations of nuclei of cell bodies
- D. aggregations of ganglia
- E. all of the above

4. Which fissure separates the cerebral hemispheres?

- A. central fissure
- B. longitudinal fissure
- C. parieto-occipital fissure
- D. lateral fissure

5. Injury to the hypothalamus may result in all of the following except _____.

- A. pathologic sleep
- B. loss of body temperature control
- C. production of excessive quantities of urine
- D. loss of proprioception

6. The extensor carpi radialis brevis:

- A. extends and abducts the wrist and is short
- B. extends and abducts the wrist and has a small tendon
- C. supinates the forearm and is a superficial muscle
- D. extends the thumb and is a deep muscle

7. Which of the following statements is TRUE?

- A. The biceps brachii inserts on the ^{radius} ulna.
- B. The deltoid is a prime mover of arm adduction.
- C. Movements of the thigh are accomplished by muscles anchored to the pelvic girdle.
- D. Severing of the patellar tendon would inactivate the hamstring group.
- E. All of the above statements are true.

8. The muscle which extends the elbow joint while doing pushups is the:

- A. deltoid
- B. pectoralis major
- C. triceps brachii
- D. biceps brachii
- E. brachialis

9. Schwann cells are functionally similar to:

- A. ependymal cells
- B. microglia
- C. oligodendrocytes
- D. astrocytes

10. This cranial nerve has five major branches and transmits sensory, motor and autonomic impulses.

- A. abducens
- B. trigeminal
- C. glossopharyngeal
- D. accessory
- E. facial

11. Tennis players often complain about pain in the arm (forearm) that swings the racquet. What muscle is usually strained under these conditions?

- A. the triceps brachii
- B. the anconeus
- C. the brachioradialis
- D. the flexor digitorum profundus

12. Adductor magnus, adductor longus and gracilis are muscles that are associated with the:

- A. lateral thigh
- B. medial thigh
- C. anterior thigh
- D. posterior thigh

13. Which muscle is the primary abductor of the arm?

- A. splenius
- B. deltoid
- C. trapezius
- D. biceps brachii
- E. brachioradialis

14. Collections of nerve cell bodies outside the central nervous system are called:

- A. nuclei
- B. nerves
- C. ganglia
- D. tracts
- E. none of the above

15. What are menisci?

- A. cavities lined with cartilage
- B. small sacs containing synovial fluid
- C. semilunar cartilage pads
- D. tendon sheaths

16. Which part of the cerebral cortex is involved in intellect, cognition, recall, and personality?

- A. prefrontal cortex
- B. posterior association area
- C. limbic association area
- D. combined primary somatosensory cortex and somatosensory association cortex

17. The polio virus typically attacks:

- A. posterior root ganglia
- B. neurons in the anterior gray horns of the spinal cord
- C. only sensory neurons
- D. only interneurons
- E. the connective tissues surrounding neurons

18. Ridges of tissue on the surface of the cerebral hemispheres are called _____.

- A. gyri
- B. sulci
- C. fissures
- D. ganglia

19. Which of the following muscles attaches to the 12th ribs and fixes their positions during expiration?

- A. inferior intercostal
- B. internal oblique
- C. external oblique
- D. rectus abdominis
- E. quadratus lumborum

20. What cells line the ventricles of the brain?

- A. ependymal cells
- B. neurons
- C. epithelial cells
- D. astrocytes

21. Which of the choices below is the major muscle for breathing?

- A. diaphragm
- B. rectus abdominis
- C. latissimus dorsi
- D. temporalis

22. The thirst centre is located in the:

- A. thalamus
- B. hypothalamus
- C. epithalamus
- D. basal ganglia
- E. none of the above

23. Bipolar neurons are commonly:

- A. motor neurons
- B. called neuroglia
- C. found in ganglia
- D. found in the retina of the eye

24. The names of muscles often indicate the action of the muscle. What does the term *levator* mean?

- A. The muscle flexes and rotates a region.
- B. The muscle is a fixator and stabilizes a bone or joint.
- C. The muscle elevates a region.
- D. The muscle functions as a synergist.

25. Paralysis of which of the following muscles would make an individual unable to flex the knee?

- A. hamstring muscles
- B. gluteal muscles
- C. brachioradialis
- D. soleus

26. The subarachnoid space lies between what two layers of meninges?

- A. arachnoid mater and pia mater
- B. arachnoid mater and dura mater
- C. dura mater and epidura mater
- D. arachnoid mater and epidura mater

27. Which of the following statements regarding spinal nerves is TRUE?

- A. The dorsal ramus carries only sensory information while the ventral ramus carries only motor information.
- B. The dorsal root carries information only toward the spinal cord while the ventral root carries information away from the spinal cord.
- C. The dorsal ramus carries information toward the posterior compartment of the body while the ventral ramus carries information toward the anterior compartment of the body.
- D. The dorsal root is equivalent to the dorsal ramus.
- E. The dorsal ramus carries only motor information while the ventral ramus carries only sensory information.

28. Muscles of facial expression:

- A. generally originate from bones of the facial skull
- B. generally insert into the skin or into other muscles, rather than bones
- C. are innervated by the facial (VII) nerve
- D. A and B are correct
- E. A, B and C are correct

29. Which of the following muscles is NOT a part of the quadriceps femoris?

- A. rectus femoris
- B. biceps femoris
- C. vastus medialis
- D. vastus lateralis
- E. vastus intermedius

30. What would normally be found immediately surrounding the central canal of the spinal cord?

- A. white matter
- B. gray matter
- C. cerebrospinal fluid
- D. the pia mater
- E. the dura mater

31. To produce horizontal wrinkles in the forehead, which of the following muscles is involved?

- A. medial pterygoid
- B. zygomaticus
- C. frontalis
- D. temporalis

32. The musculocutaneous nerve innervates which of the following muscles?

- A. rectus femoris
- B. biceps brachii
- C. pectoralis major
- D. gastrocnemius
- E. levator scapulae

33. Which of the following muscles inserts via the calcaneal tendon?

- A. semitendinosus
- B. sartorius
- C. tibialis anterior
- D. gastrocnemius

34. An individual who could trace a picture of a bicycle with his or her finger but could not recognize it as a bicycle is most likely to have sustained damage to the:

- A. Wernicke's area
- B. primary visual area
- C. frontal eye field
- D. visual association area
- E. visceral association area

35. A cute, little curly-haired child is sitting behind you in church. You turn around for a moment and she sticks her tongue out at you. Which tongue muscle did she use?

- A. orbicularis oris
- B. stylohyoid
- C. hyoglossus
- D. genioglossus

36. A professor unexpectedly blew a loud horn in his anatomy class, and all his students looked up, startled. These reflexive movements of their neck and eye muscles were mediated by the:

- A. inferior olivary nuclei
- B. thalamus
- C. inferior colliculi
- D. cerebral cortex

37. The brainstem includes all of the following EXCEPT the:

- A. medulla oblongata
- B. pons
- C. midbrain
- D. diencephalon
- E. reticular formation

38. Which of the following nerves does NOT arise from the brachial plexus?

- A. median
- B. radial
- C. ulnar
- D. phrenic

39. How does cerebrospinal fluid pass from the 3rd ventricle into the 4th ventricle? Through the:

- A. interventricular foramen
- B. median aperture
- C. cerebral aqueduct
- D. lateral apertures
- E. central canal

40. The hypothalamus:

- A. is the thermostat of the body since it regulates temperature
- B. contains feeding and hunger centres
- C. contains neurons sensitive to the hydration level of the blood
- D. all of the above are correct

41. The muscles that flex the leg and extend the thigh:

- A. are found in the posterior compartment of the thigh
- B. include the semimembranosus and the semitendinosus
- C. are collectively called the hamstrings
- D. A) and B) are correct
- E. A), B) and C) are correct

42. The gliding motion of the wrist is accomplished because of the _____ joint.

- A. hinge
- B. plane
- C. pivot
- D. condyloid

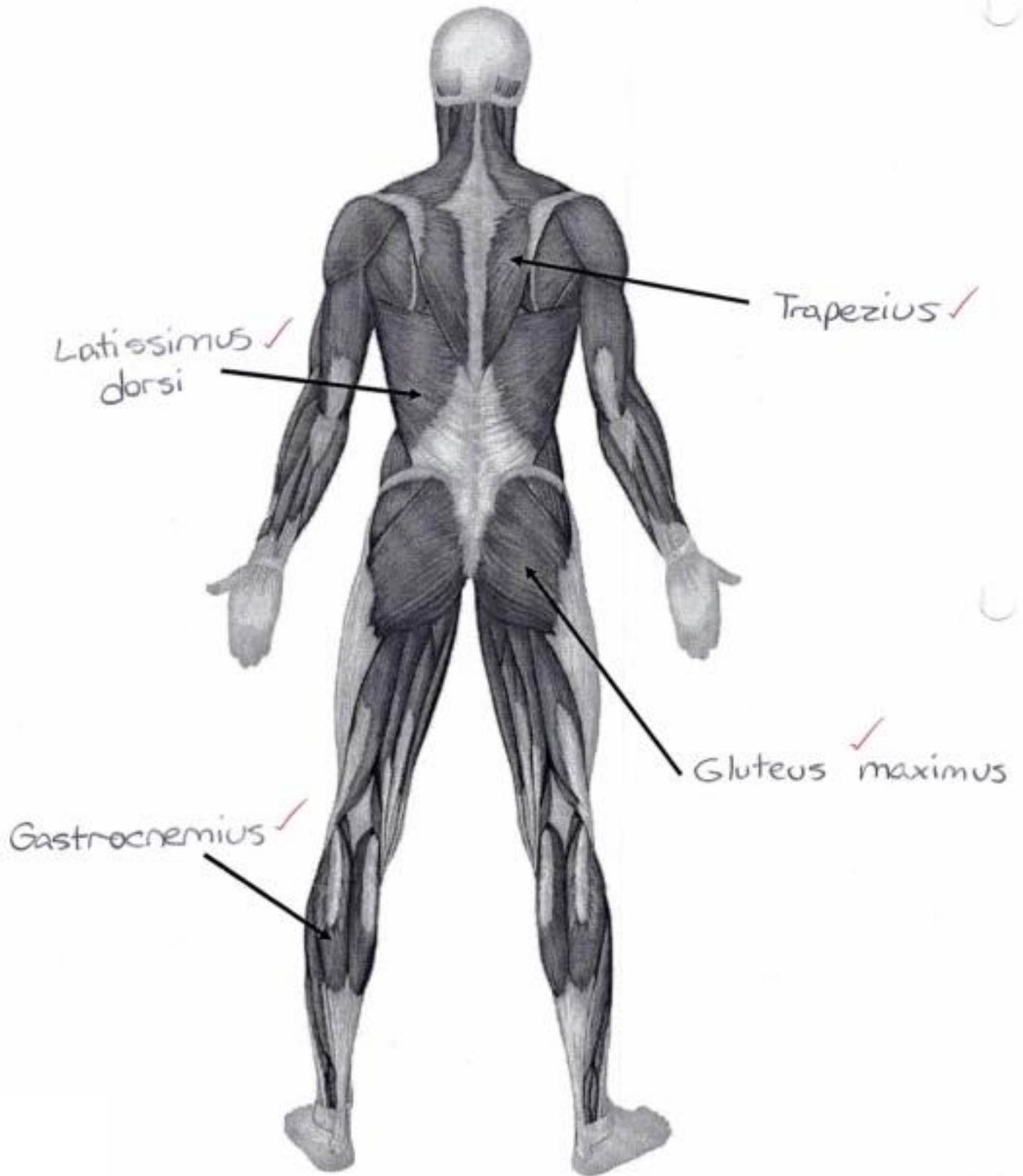
43. A spinal nerve is covered from the inside out with a:

- A. myelin sheath, endoneurium, perineurium, epineurium
- B. myelin sheath, epineurium, perineurium, endoneurium
- C. myelin sheath, perineurium, epineurium, endoneurium
- D. epineurium, perineurium, endoneurium

For Questions 44-47, indicate whether each of the following statements is TRUE (T) or FALSE (F) in the space provided.

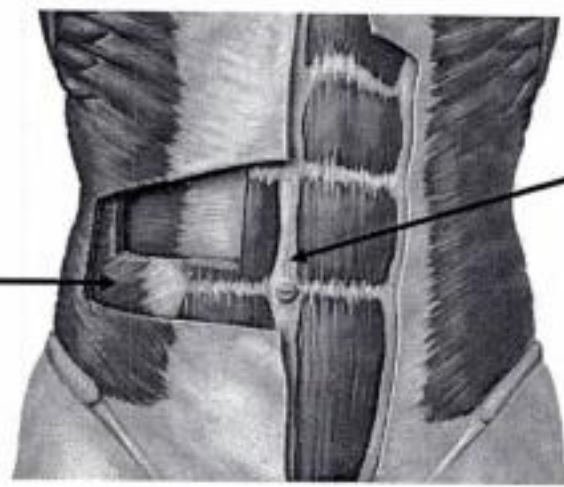
- ✓ 44. ...F..... The abducens nerve is exclusively sensory.
- ✓ 45. ...T..... Dermatomes are skin segments that relate to sensory innervation regions of spinal nerves.
- ✓ 46. ...F..... The sartorius muscle medially rotates the thigh.
- ✓ 47. ...F..... Denticulate ligaments help to anchor the brain anteriorly in the skull.

Label the muscle upon which each arrow is sitting or fill in the blank (15 marks total)



1

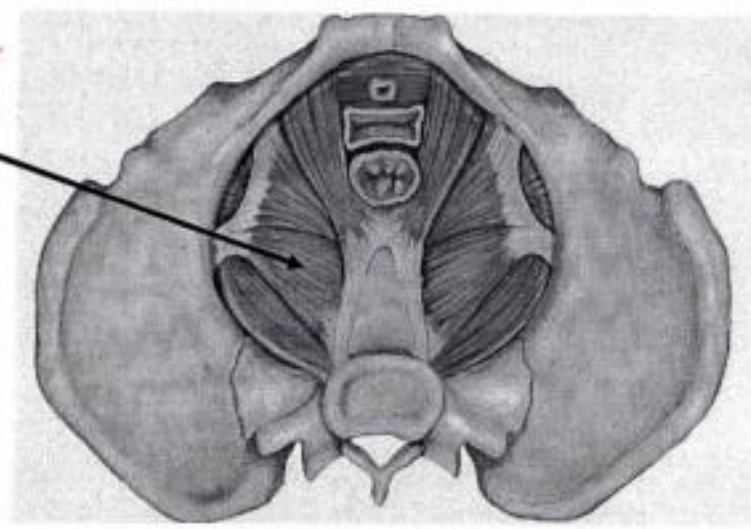
Internal Obliques ✓



Linea Alba ✓

2

Coccyx ✓



3

Femoral nerve ✓



L1

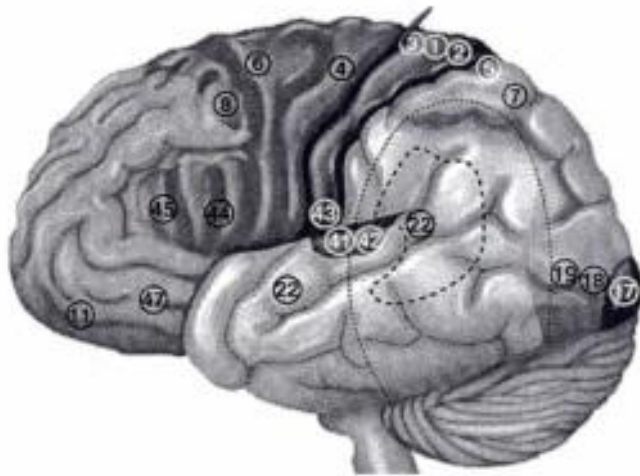
L2

L3

L4

Lumbar plexus

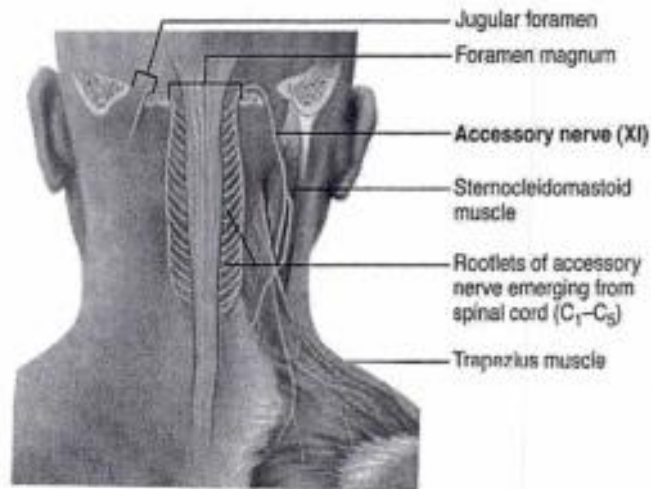
Write in the Brodmann number(s) that is/are closest to each of the following areas of the brain.



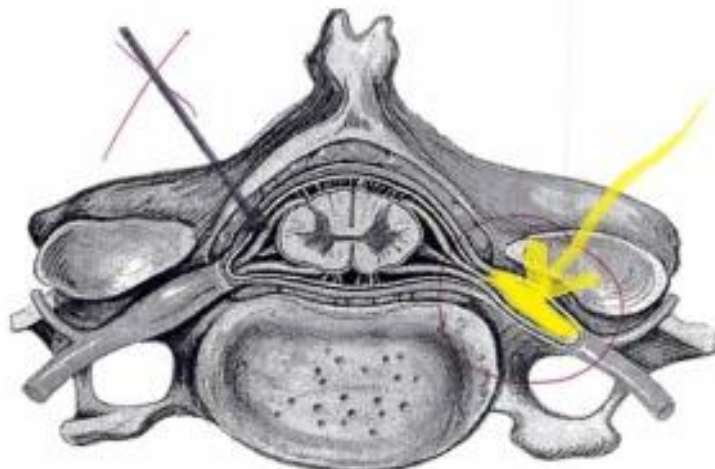
56. Primary motor cortex4... ✓

57. Somatosensory association area ..5,7... ✓

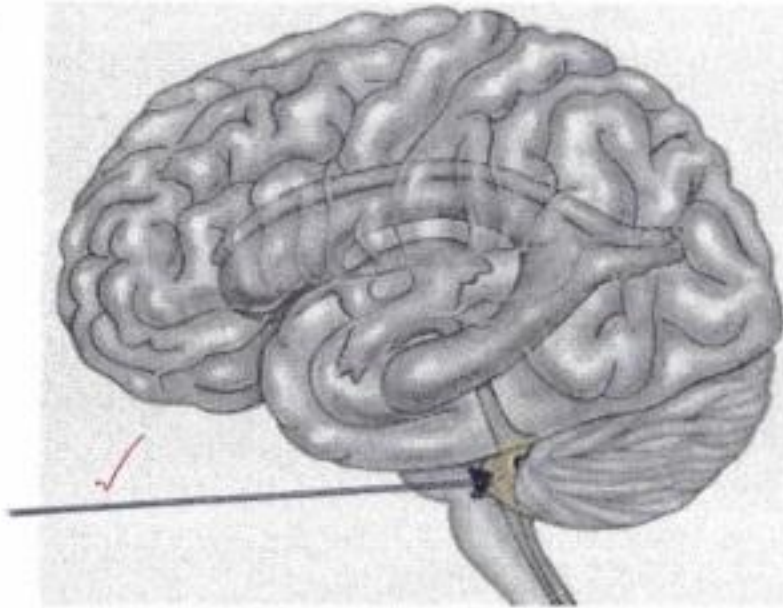
58. The nerve shown below is theAccessory... nerve. (xi) ✓



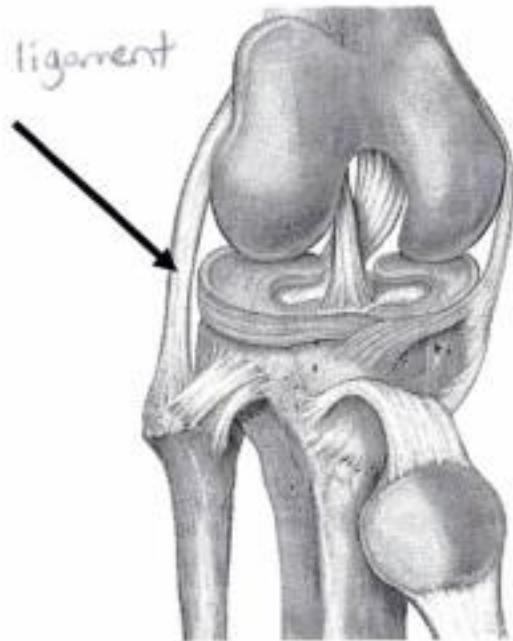
59. In the diagram below, draw an arrow to the dorsal root ganglion.



60. Draw an arrow to the **fourth ventricle** in the diagram below.



Collateral (fibular) ligament



Knee
(extracapsular)

62. The ...^(0.5)epicranial... muscle... consists of a frontal belly and an occipital belly joined by an aponeurosis.

epicranius