1. Which of the following is NOT part of the diencephalon?
   a. Pineal gland
   b. **Tectum**
   c. Interthalamic adhesion
   d. Hypothalamus
   e. Thalamus

2. The ______________ is the primary relay station for sensory information coming into the cerebral cortex.
   a. Hypothalamus
   b. Epithalamus
   c. Midbrain
   d. **Thalamus**
   e. Prosencephalon

3. The ______________ is attached to the hypothalamus by the infundibulum.
   a. Pineal gland
   b. Sella turcica of the sphenoid bone
   c. Thyroid gland
   d. Thalamus
   e. None of the above

4. The ______________ is the autonomic control center.
   a. Thalamus
   b. Pons
   c. Prefrontal cortex
   d. **Hypothalamus**
   e. Fornix

5. Which of the following secretes a hormone that plays a role in the regulation of sleep/wake cycles?
   a. Thalamus
   b. Pituitary gland
   c. Brainstem
   d. Pons
   e. **Pineal gland**

6. Which of the following is NOT found in the brain stem?
   a. Pons
   b. Midbrain
   c. Cerebral peduncles
   d. Decussation of the pyramids
   e. **Lateral ventricle**
7. The cerebral aqueduct connects the:
   a. Left and right lateral ventricles
   b. Lateral ventricles to the 3rd ventricle
   c. Third ventricle to the 4th ventricle
   d. 4th ventricle to the subarachnoid space
   e. Subarachnoid space to the dural sinuses

8. The pons contains:
   a. White matter linking the cerebral cortex and the spinal cord
   b. Nuclei involved in urination
   c. Nuclei involved in respiration
   d. Neurons and glial cells
   e. All of the above

9. Which of the following is NOT TRUE?
   a. The deepest meninx is the pia mater
   b. The dura mater of the brain is a 2 layered structure
   c. The periosteal dura mater is deep to the meningeal dura mater
   d. The subarachnoid space contains cerebrospinal fluid
   e. The subarachnoid space is between the arachnoid mater and the pia mater

10. Which of the following is NOT TRUE?
    a. Venous sinuses are found between the 2 layers of the dura mater
    b. CSF travels from the subarachnoid space to the venous sinuses
    c. There are 4 ventricles in the brain
    d. Roughly 5000 mL of CSF is produced daily.
    e. CSF enters the subarachnoid space by way of the median and lateral apertures of the 4th ventricle

11. Which of the following is TRUE?
    a. Capillary endothelial cells are linked by tight junctions.
    b. The brain is a very vascular organ
    c. The blood-brain barrier protects the brain from harmful substances in the brain
    d. The lateral ventricles are separated by the septum pellucidum
    e. All of the above

Use the following answer choices for the next 6 items. Each may be used once, more than once, or not at all.

a. CN VII
b. Oculomotor nerve
c. CN II
d. Glossopharyngeal nerve
e. None of the above

12. Controls the levator palpebrae superioris
13. Controls the submandibular and sublingual glands
14. Extends through the optic canals of the sphenoid bone
15. Shrugs the shoulders.
16. Carries sensory information concerning blood pressure.
17. Releases ACh onto the heart
18. Which of the following is NOT TRUE?
   a. The trigeminal nerve is the largest of the cranial nerves.
   b. “Vagus” means wanderer.
   c. Damage to the trochlear nerve could result in double vision.
   d. The cochlea of the inner ear is associated with CN VIII.
   e. Fibers of CN I pass through the cribriform plate of the sphenoid bone.

19. Which of the following nerves controls the motor functions of the tongue?
   a. CN V
   b. CN VII
   c. CN IX
   d. CN XI
   e. CN XII

20. Which of the following cranial nerves does NOT contain axons of parasympathetic motor neurons?
   a. CN III
   b. CN VII
   c. CN IX
   d. CN X
   e. CN XII

21. Inability to track the flight of an airplane could be indicative of damage to the:
   a. Inferior colliculus
   b. Superior colliculus
   c. Cerebral aqueduct
   d. 3rd ventricle
   e. Central canal of the spinal cord

22. Which of the following cortical areas is associated with neurons extending through the cribriform plate?
   a. Gustatory cortex
   b. Olfactory cortex
   c. Primary somatosensory cortex
   d. Premotor cortex
   e. Frontal eye field

23. Which of the following brain areas would you expect to be most involved in coordinating the joint movements used in throwing a football?
   a. Cerebellum
   b. Epithalamus
   c. Hypothalamus
   d. Adenohypophysis
   e. Neurohypophysis

24. There are 24 cranial nerves.
   a. True
   b. False
25. Which of the following is NOT considered one of the 4 major regions of the brain?
   a. Cerebrum
   b. Prosencephalon
   c. Diencephalon
   d. Cerebellum
   e. Brainstem

26. Which of the following is NOT TRUE?
   a. The cerebral hemispheres make up about 80% of the brain.
   b. Ridges in the cerebrum are called sulci
   c. The longitudinal fissure separates the 2 cerebral hemispheres
   d. The central sulcus separates the frontal and parietal lobes
   e. The parieto-occipital sulcus separates the parietal and occipital lobes

27. Which of the following is NOT TRUE?
   a. The precentral gyrus is anterior to the central sulcus
   b. The precentral gyrus is anterior to the postcentral gyrus
   c. The lateral sulcus separates the temporal lobe from the parietal and frontal lobes
   d. Each cerebral hemisphere has a thin outer surface layer composed of myelinated axons
   e. The cerebral cortex is the site of the conscious mind

28. Which of the following is NOT TRUE?
   a. The primary motor cortex is found in the postcentral gyrus.
   b. The precentral gyrus contains pyramidal neurons that control muscle movements.
   c. The motor homunculus has big hands
   d. The corticospinal tracts connect the spinal cord and the primary motor cortex
   e. The premotor cortex is anterior to the precentral gyrus

29. Damage to Broca’s area would result in an inability to:
   a. See a pattern of flashing lights
   b. Smell organic compounds like freshly cut grass
   c. Smell volatile compounds like unleaded gasoline
   d. Say the word “inconspicuous”
   e. Hear sounds that are high in pitch

30. Which of the following is NOT TRUE?
   a. The frontal eye field controls voluntary eye movements
   b. The somatosensory cortex is found in the postcentral gyrus
   c. The sensory homunculus has large lips
   d. Proprioceptors sense body position
   e. The somatosensory association cortex is just anterior to the postcentral gyrus
31. The number of cranial nerves with purely sensory function is _______________________ the number of cranial nerves with purely motor function.
   a. Greater than
   b. **Less/fewer than**
   c. Stay the same

32. Which of the following is NOT TRUE?
   a. The primary visual cortex is found in the occipital lobe
   b. The visual association area is found in the occipital lobe
   c. The primary auditory cortex is found in the temporal lobe
   d. Rodin is the artist who sculpted *The Thinker*
   **e. The corpus callosum is a group of projection fibers**

33. Which of the following is NOT TRUE?
   a. Wernicke’s area is involved in understanding spoken language
   b. A frontal lobotomy can drastically alter an individual’s personality
   **c. Association fibers connect the 2 cerebral hemispheres**
   d. Basal nuclei are deep to the cerebral cortex
   e. Basal nuclei play a role in performing voluntary movements

34. Movement of the right hand is caused by neural activity in the:
   a. **Left precentral gyrus**
   b. Right precentral gyrus
   c. Left postcentral gyrus
   d. Right postcentral gyrus
   e. All of the above

35. Which of the following is NOT TRUE?
   a. The motor tracts descending toward the spinal cord cross over in the medulla oblongata
   b. The medulla oblongata contains nuclei involved in cardiac function
   **c. The medulla oblongata is superior to the pons**
   d. The medulla oblongata is superior to the spinal cord
   e. All of the above

36. Which of the following is NOT TRUE?
   a. The vermis is found in between the 2 cerebellar hemispheres.
   b. Munch painted “The Scream”
   c. The cerebellum plays a role in coordinating the movements involved in throwing a baseball.
   **d. The cerebellum is anterior to the 4th ventricle**
   e. The cerebellum is inferior to the occipital lobe of the cerebrum

37. Mr. Drexler suffered a stroke. He is able to understand verbal and written language, but when he tries to speak, his words are garbled. What cortical region did the stroke damage? *Broca’s area*
38. After Mr. Stockton’s brain tumor was removed, he could no longer identify an object solely by touch. He can describe how the object feels when he touches it but he must look at it in order to name it. What cortical region could be malfunctioning?
   Somatosensory association cortex

39. Mr. Olajuwon was in a horrific snowmobile accident. Afterwards he had trouble walking and he had a loss of balance. Which of the 4 major brain regions was probably damaged?
   Cerebellum

40. Someone can survive the destruction of an entire cerebral hemisphere but cannot survive destruction of the hypothalamus. Why?
   b/c of the vital role the hypothalamus plays in maintaining homeostasis – including the regulation of cardiac function and blood pressure.

41. Rank the following from most anterior to most posterior.
   Primary visual cortex 6
   Central sulcus 4
   Premotor area 2
   Prefrontal cortex 1
   Precentral gyrus 3
   Wernicke’s area 5

42. Bogorad’s syndrome (a.k.a. crocodile tears syndrome) is spontaneous lacrimation (crying) during eating. Damage to which of the following nerves is the likely cause of this disorder?
   a. Cranial nerve 5
   b. Oculomotor nerve
   c. **Facial nerve**
   d. Cranial nerve 0

43. An inability to shrug one’s shoulders would be indicative of damage to which of the following nerves?
   a. Vagus
   b. **Accessory**
   c. Hypoglossal
   d. Hyperglossal
   e. Trapeziomatic
   f. All of the above
   g. 2 of the above

44. Cutting one of the cranial nerves will cause heart rate to go up. Which cranial nerve must it be?
   a. Vestibulocochlear
   b. **Vagus**
   c. Visceral
   d. Trigeminal
   e. CN VI
45. Meniere’s disease is characterized by a loss of balance and a ringing in the ears. Inflammation of which of the following nerves is the likely cause?
   a. Trochlear
   b. Abducens
   c. Facial
   d. Vestibulocochlear

46. Which of the following cranial nerves is the odd one of the group?
   a. Trochlear
   b. Abducens
   c. Oculomotor
   d. Optic

47. Explain your reasoning behind your choice for #46. What commonality did the other 3 share that led you to select the odd one?
   It’s the only sensory one.

48. Which cranial nerve is not really a cranial nerve? And why?
   Accessory b/c it is formed from the cervical spinal nerve roots.

49. Which of the following nerves carry sensory information about blood pressure?
   a. Vagus
   b. Accessory
   c. Hypoglossal
   d. Trochlear
   e. Glossopharyngeal
   f. All of the above
   g. 2 of the above