PSYCH 260H Exam 3

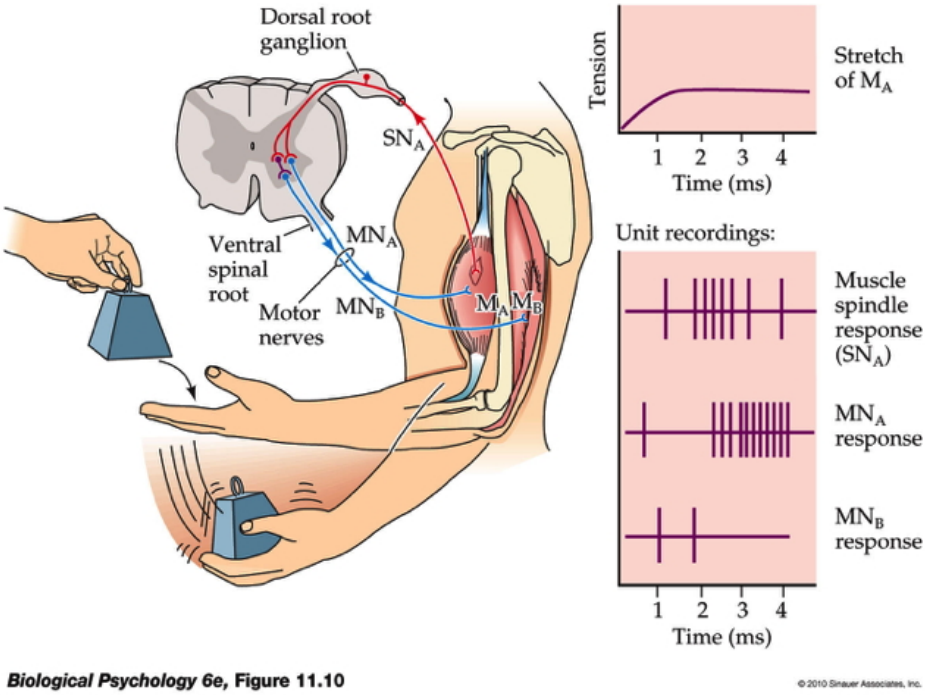
November 16, 2016

Answer the questions using the Scantron form.

Name: _____

1 Main

Questions 1 and 2 refer to the figure below.



Biological Psychology 6e, Figure 11.10

1. The figure depicts the _____, one of the simplest circuits in the nervous system. It regulates _____.

   A. biceptual reflex; balance.

   B. myotatic/stretch reflex; muscle length/position.

   C. optokinetic reflex; muscle strength.

   D. Cartesian reflex; skeletal-muscular activity.

2. This circuit has a/an _____branch in which stretch receptors in intrafusal muscle fibers _____the extrafusal muscle fibers from the *antagonist* muscle.

   A. polysynaptic; inhibit.

   B. autonomic; inhibit.

   C. monosynaptic; excite.

   D. monosynaptic; inhibit.

3. Plutchik's biological approach to emotion focuses on an emotion's _____and _____.
   A. subjective feelings; facial expressions.
   B. action tendencies (tendency to approach or avoid); valence (positive/negative).
   C. intensity; subjective feelings.
   D. influence on on reproduction; link to defense behavior.

4. The serotonin hypothesis of depression suggests that _____.
   A. lowered 5-HT levels are part of the disorder.
   B. increased 5-HT levels are part of the disorder.
   C. lower ACh levels exacerbate the disorder's positive symptoms.
   D. higher DA levels are linked to the disorder's positive symptoms.

5. The primary purpose of the *intrafusal* muscle fibers is to _____.
   A. Generate force.
   B. Inhibit the contraction of muscles.
   C. Sense tension/length.
   D. All of the above.

6. Which of the following is true regarding fibers that link somatosensory receptors to the central nervous system?
   A. Fibers that are smallest in diameter conduct information the fastest.
   B. Thin fibers are generally the most heavily myelinated.
   C. Temperature-related information is conducted faster than touch-related information.
   D. Muscle spindle receptor axons are thickest and most heavily myelinated.

7. All of the following are treatments for bipolar disorder *EXCEPT*:
   A. Lithium.
   B. Anticonvulsants.
   C. Antipsychotics.
   D. Dopamine agonists.

8. One might be tempted to call the fingertips "the somatosensory fovea" for all of the following reasons *EXCEPT*:
   A. Both the fingertips and the fovea have high receptor cell densities.
   B. Both the fingertips and the fovea have high perceptual acuity.
   C. Both the fingertips and the fovea activate small areas of the cerebral cortex.
   D. The scanning movements of both the fingertips and the fovea are precisely controlled by the motor system.

9. Parkinson's Disease involves the degeneration of _____-releasing neurons in the _____.
   A. Acetylcholine; Thalamus.
   B. Dopamine; Substantia Nigra.
   C. Dopamine; Inferior Colliculus.
   D. Acetylcholine; Substantia Nigra.

10. The neurotransmitter _____is released by α motor neurons at the neuromuscular junction; this event leads to an _____within the muscle fiber and eventually, muscle fiber contraction.

    A. Glutamate; EPSP.

    B. Acetylcholine; IPSP.

    C. Glutamate; IPSP.

    D. Acetylcholine; EPSP.

11. Which of the following events must occur in order for neurotransmitter to be released from an axon's presynaptic terminal?

    A. Voltage-gated K+ channels must open to permit K+ to enter the cell.

    B. Voltage-gated Ca++ channels must open to permit Ca++ to enter the cell.

    C. Neurotransmitters must diffuse through the cytoplasm to the presynaptic membrane.

    D. None of the above.

12. The human cerebellum is _____the rest of the brain when comparing it to related animal groups.

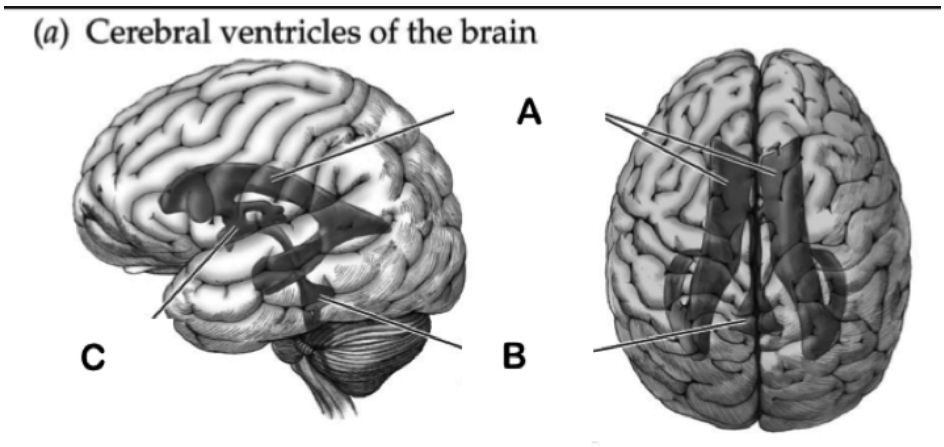
    A. larger than

    B. smaller than

    C. the same size as

    D. less dense than

For the next three (3) questions match the correct label to the letters in the figure below.



13. Third Ventricle

14. Lateral Ventricle

15. Fourth Ventricle

16. Visual information from the _____projects to the suprachiasmatic nucleus (SCN) of the _____. This is one way that light information influences circadian rhythms.

    A. retina; hypothalamus.

    B. LGN; hippocampus.

    C. MGN; inferior colliculus.

    D. V1; thalamus.

17. _____is a preventable (and treatable) birth defect characterized by a failure in the closure of _____neural tube.

    A. Spina bifida; caudal

    B. Anencephaly; caudal

    C. Spina bifida; rostral

    D. Anencephaly; rostral

18. In most areas of the human cerebral cortex, synaptic density peaks _____.

    A. when the neural tube closes

    B. late in the fetal period

    C. late in adult life

    D. in early to middle childhood

19. Diffusion Tensor Imaging (DTI) is a _____MRI method that provides information about _____.

    A. functional; how neurotransmitters diffuse across the synaptic cleft

    B. functional; the blood oxygen-level dependent (BOLD) response

    C. structural; connectivity between brain areas

    D. structural; the branching structure of neuronal dendrites

20. Schizophrenia is characterized by which of the following brain abnormalities?

    A. Increased size of ventricles.

    B. Reduced hippocampal volume.

    C. Accelerated gray matter loss.

    D. All of the above.

21. Why might the dopamine (DA) hypothesis not provide a comprehensive explanation for schizophrenia?

    A. Changes in DA levels have not been shown to disturb memory function.

    B. The hypothesis cannot explain the strong developmental origins of the disease.

    C. Some drugs increase DA levels but reduce schizophrenic symptoms.

    D. DA antagonists only relieve the negative symptoms of schizophrenia.

22. One of the *last* events in the development of the nervous system is _____.

    A. The formation of the neural tube.

    B. The differentiation of the pluripotent cells into neurons.

    C. Synaptogenesis in the cerebral cortex.

    D. Myelination of cortical axons.

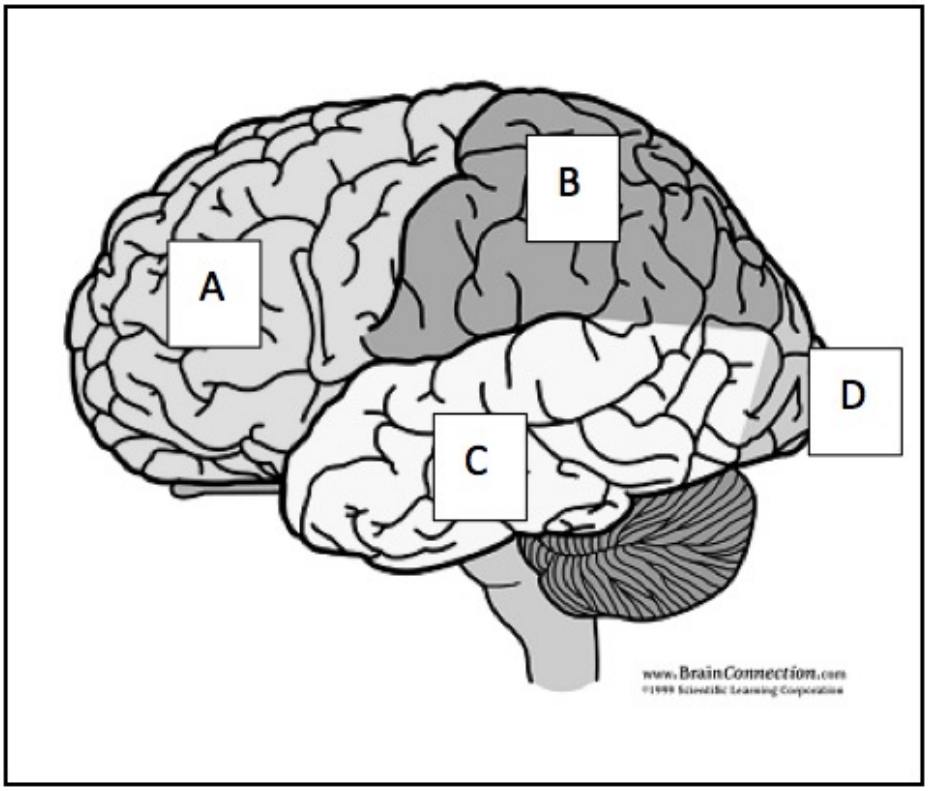
23. Woody Guthrie and his mother died of _____, a disease that targets the _____.
    A. Parkinson's Disease; basal ganglia.
    B. Parkinson's Disease; cerebellum.
    C. Huntington's Disease; basal ganglia.
    D. Huntington's Disease; cerebellum.

24. Touch receptors enervating the skin on the _____have especially *small* receptive fields.
    A. Face.
    B. Calf.
    C. Neck.
    D. Back.

25. Perceptual sensitivity is *NOT* related to which of the following?
    A. Receptor density.
    B. Speed of propagation.
    C. Receptive field size.
    D. Size of the cortical area.

26. In response to a typical environmental stressor, cortisol levels _____.
    A. involve activation of the SAM axis.
    B. rise, fall below baseline levels, then return.
    C. rise and stay elevated.
    D. rise then return to normal after a short period.

Indicate the letter of the lobe that corresponds to the location of each sensory or motor cortical area.



27. Location of the primary somatosensory cortex.
28. Location of the primary auditory cortex.
29. Location of the primary motor cortex.
30. Location of the primary visual cortex.

Select the best answer for the following questions.

31. The uterus consists of _____muscle fibers that contract involuntarily in the presence of the hormone _____.

    A. Striated; cortisol.
    B. Striated; oxytocin.
    C. Smooth; oxytocin.
    D. Smooth; melatonin.

32. Which two sensory streams provide the most precise information about objects or animals at a distance – distal to the observer?

    A. vision and audition.

    B. somatosensation and gustation.

    C. olfaction and the temperature sense.

    D. vestibular sense and vision.

33. Cognitive behavior therapy is *less* successful than drugs in treating depression.

    A. True.

    B. False.

34. Milner and Olds discovered that electrical stimulation of the medial forebrain bundle connecting the _____and _____caused experimental animals to change their behavior in order to seek out ever more frequent stimulation.

    A. ventral tegmental area; nucleus accumbens

    B. hippocampus; amygdala

    C. temporal cortex; striatum

    D. hypothalamus; pituitary

35. Serotonin/Norepinephrine reuptake inhibitors (SNRIs) act on presynaptic _____and cause extracellular levels of these _____to be increased.

    A. metabotropic receptors; hormones.

    B. ion pumps; amino acids.

    C. transporters; monoamines.

    D. Ionotropic receptors; indolamines.

36. Spicy foods can seem 'hot' even at room temperature because _____.

    A. thermoreceptors in the skin don't respond to temperature differences

    B. thermoreceptors in the skin also respond to certain chemical substances

    C. flavor involves the olfactory system and the gustatory system

    D. receptive fields for temperature overlap with those for flavor

37. Elephants have high levels of dexterity (fine motor control) in their trunks. Somatosensory neurons in the trunk region of the elephant's S1 are likely to have _____.

    A. Small receptive fields.

    B. Large receptive fields.

    C. Weak projections to corresponding regions of M1.

    D. Low levels of myelination.

38. Which of these is an effective treatment of Huntington's Disease?

    A. Dopamine Agonists

    B. NMDA Agonist

    C. Selective Serotonin Reuptake Inhibitors

    D. None of the above

39. A somatosensory neuron's receptive field consists of _____.

A. the skin between cutaneous receptor dendrites

B. the region of the skin that influences the neuron's firing when stimulated

C. all the inputs to the neuron's dendrites and soma

D. its response pattern to 'donut'-shaped inputs

40. Lesions of the _____block fear conditioning in experimental animals.

A. hippocampus

B. cerebral cortex

C. amygdala

D. striatum

2 Bonus

41. Which of these is *NOT* true about individuals with schizophrenia?

    A. About half of them have a moderate form that is manageable.

    B. About a third of them have a mild form that resolves.

    C. They show decreased cortical thickness in adolescence.

    D. They can exhibit delusional thoughts, hallucinations, mood issues, and behavioral abnormalities.

42. The projection from the _____to the _____is a major pathway in the brain's 'reward' system.

    A. Ventral tegmental area (VTA); nucleus accumbens/ventral striatum.

    B. Substantia nigra; striatum.

    C. Ventral tegmental area (VTA); amygdala.

    D. Hypothalamus; adrenal medulla.

43. What did Dr. Wolpert say the sea squirt does after it finds a home on a rock?

    A. Looks for something to eat.

    B. Eats its own brain.

    C. Rests and digests.

    D. Starts seeking a mate.

44. An acute stressor is one that _____.

    A. lasts only a short period of time

    B. is especially intense and long-lived

    C. rarely triggers the HPA axis

    D. overstimulates cortisol receptors in the spinal cord