

Class/Lab Activity #4 Physiology

A. Questions to Consider from the Neurotransmitter Lecture

1. About how many neurotransmitters are there? _____. How many **categories** will we study? _____.
2. Which neurotransmitter (NT) is in a category all by itself _____. Why?
3. If a neuron releases ACh then is it called a _____ neuron.
4. The 2 amino acids that act as **excitatory** NT's are: 1) _____ and 2) _____.
5. The 2 amino acids that act as **inhibitory** NT's are: 1) _____ and 2) _____.
6. What is a useful way to distinguish these from each other? (*Hint: location of release!*)
7. What are the 2 types of **Biogenic Amines**? 1) _____ and 2) _____.
8. The amino acid _____ is what all of the _____ are derived from.
9. List the 3 types of **catecholamines** and *very briefly* their main function.
 - a.
 - b.
 - c.
10. List the 2 types of **indolamines** and very briefly their main function.
 - a.
 - b.
11. The NT **serotonin** is derived from the essential amino acid _____. Natural foods that are rich sources of this amino acid include: _____.
12. What are the 3 types of **Neuropeptides** discussed in lecture?
 - 1) _____
 - 2) _____
 - 3) _____
13. The specific NT _____ is involved in the perception of pain in the brain.
14. The other 2 NT's are called "_____ peptides" because they are very similar in structure and effect to opium. Both are also called _____ or natural 'painkillers'. The NT _____ is more involved with blocking the pain transmission pathway in the brain. In other words, there must be a painful stimulus first, for example going through childbirth.
15. The other neuropeptide is _____, and it also interferes with pain transmission, but has several different ways that it can provide a **euphoric** (pleasant) feeling. For example, engaging in very strenuous exercising, like intense running, will release it. What is Runners High?

B. Multiple Choice Questions related to Neurotransmitter Lecture

16. When a neuron is hyperpolarized, which of these membrane potentials would it most likely be?
 a) 0 mV; b) -65 mV; c) -55 mV; d) -72 mV; e) +35 mV.

17. The effect of GABA on a postsynaptic neuron is:
 a) all-or-none b) hyperpolarization c) repolarization d) depolarization e) excitation

18. Which of these neuropeptides act as analgesics?
 a) CCK b) monoamines c) enkephalins d) amino acids e) catecholamines

19. The monoamines include all of the following neurotransmitters except:
 a) serotonin b) norepinephrine c) dopamine d) GABA e) histamine

20. Hyperpolarization of the postsynaptic cell from glycine or GABA is produced by the opening of:
 a) Na⁺ channels b) K⁺ channels c) Ca²⁺ channels d) Cl⁻ channels e) K⁺/Na⁺ channels

C. Questions related to CNS Lecture

21. Look up the word 'Homunculus': It means _____.

22. Where specifically is the **primary motor cortex** located? _____.

23. What does the primary motor cortex do? _____.

24. Where specifically is the **primary sensory cortex** located? _____.

25. What does the primary **somatosensory** cortex do? _____.

26. What does **Cerebral Lateralization** mean?

27. What does a **Lateralization of cerebral hemispheres** mean? Elaborate with these examples from class.

a) Wernicke's area:

b) Brocca's area:

28. **Amygdala** means _____ in Latin. This is because they are similar in size and shape. The amygdala has several important roles, one is facial expressions that elicit _____ in us. However, we also have _____ emotional responses to recognition of faces of people we care about.

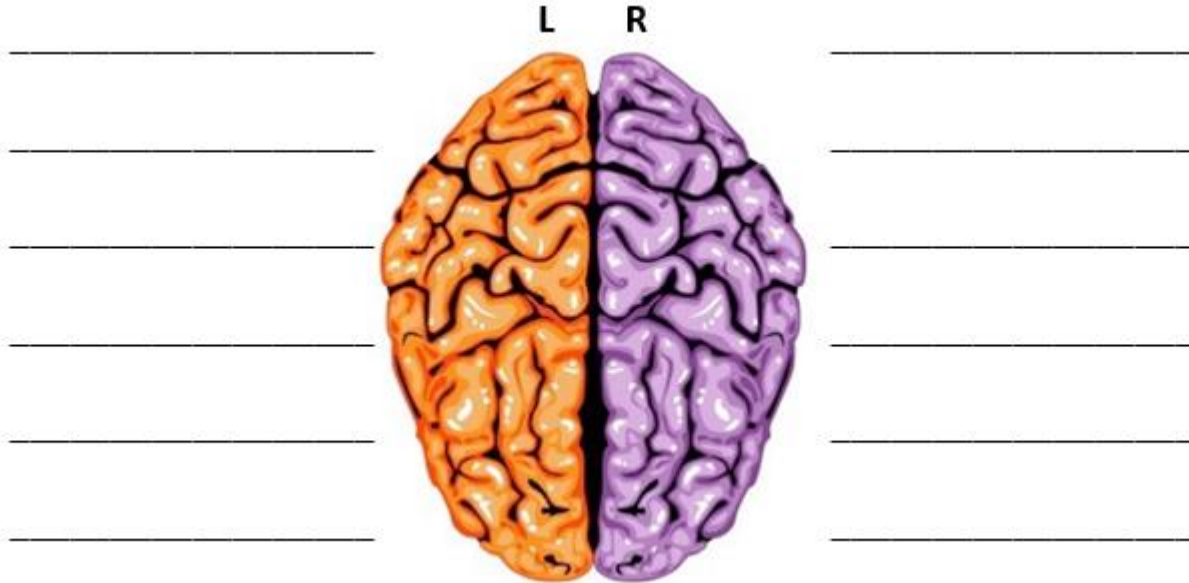
29. Receptors called _____ carry information about the relative position of various body parts and deliver it to the **cerebellum** region of the brain. Cerebellum means _____ brain.

30. If you were making a grand entrance into a room and lost your footing and started to fall, which of the majors divisions of your brain would step in and re-establish your balance? _____.

31. This structure receives incoming sensory information and then **relays** it to the proper regions of higher brain centers in the **cerebrum** for further processing. It is the: _____.

The Left and Right Cerebral Hemispheres

32. For the *basic differences* regarding how the **Left** and **Right** cerebral hemispheres process information, fill in the 6 lines for each hemisphere in the image using the selection of terms listed below.



Terms: Artistically Creative, Literal, Organized, Figurative, Logical, Heuristic, Analytical, Holistic, Sequential, Empathetic, Detached, and Conceptual.

33. Fill in the table below listing 4 main differences between the conscious and subconscious mind. Find table on p 181 of OER text or any other reliable source for information.

Conscious Mind	Subconscious Mind
Represents ____% of total activity	Represents ____% of total activity

34. What does the term **apophenia** mean? What is a common specific example?



35. **Pareidolia** (a type of apophenia) means: What is a common specific example? (see p184 in OER text)

36. Briefly discuss **why & how** the functions of the subconscious mind can be manipulated by advertisers.