

## Review Questions

1. This brain area is associated with motivations and control of the pituitary gland:
  - A. cerebellum
  - B. thalamus
  - C. hypothalamus
  - D. medulla
  - E. hippocampus
  
2. Twin studies can be used to estimate a heritability score, which indicates the:
  - A. role of genes in an individual's behavior
  - B. percentage of genes inherited from a parent
  - C. chances of a genetic mutation occurring
  - D. role of genes in explaining why people differ
  - E. influence of a particular gene on behavior
  
3. Dr. Agrawal wants to conduct a study to examine how a drug influences activity in specific regions of the amygdala during a brief visual task. Which technique would be best suited to this type of study?
  - A. fMRI
  - B. lesioning
  - C. CT scan
  - D. MRI
  - E. EEG
  
4. Reduced levels of which neurotransmitter are associated with Parkinson's disease?
  - A. serotonin
  - B. acetylcholine
  - C. glutamate
  - D. GABA
  - E. dopamine
  
5. Following a stressful event, Tom's elevated heart-rate gradually slows, and normal blood flow returns to his digestive system. These changes are due to the actions of the:
  - A. somatic nervous system
  - B. sympathetic nervous system
  - C. parasympathetic nervous system
  - D. amygdala
  - E. corpus callosum
  
6. Auditory information is primarily processed in the \_\_\_\_ lobes.
  - A. occipital
  - B. temporal
  - C. parietal
  - D. contralateral
  - E. frontal
  
7. Information passes between the left and right hemispheres of the cerebral cortex via the:
  - A. thalamus
  - B. pons
  - C. cerebellum
  - D. corpus callosum
  - E. hippocampus
  
8. A split brain patient focuses his vision on the cross and these words are flashed on the screen.
 

house + boat

If asked to draw what he saw with his left hand, he would draw a:

  - A. house
  - B. houseboat
  - C. boat
  - D. house and a boat
  - E. nothing
  
9. This refers to the rapid influx of positively charged sodium ions into a neuron:
  - A. hyperpolarization
  - B. action potential
  - C. resting potential
  - D. refractory period
  - E. reuptake
  
10. Nicotine binds to receptors for acetylcholine and stimulates activity. This makes nicotine a(n) \_\_\_\_ drug:
  - A. monozygotic
  - B. antagonist
  - C. myelinated
  - D. agonist
  - E. saltatory

## Review Questions

### 1. C – hypothalamus

Located beneath the thalamus (literally “under thalamus”) the hypothalamus is involved in hunger, thirst, temperature, fight or flight, and mating behavior.

### 2. D - role of genes in explaining why people differ

A heritability score is an estimate for the role of genes in explaining variation in a trait in a population. The score ranges from 0 (genes explain none of the difference) and 1 (genes explain all of the difference) and only applies to populations, not individuals.

### 3. A - fMRI

To measure activity, a functional technique is needed (unlike MRI or CAT scan, which are structural) and it should have high spatial resolution for activity beneath the cortex (unlike EEG). Lesioning refers to destruction of brain tissue, which would not be ethically appropriate.

### 4. E - dopamine

Although most popularly associated with reward-seeking, dopamine also plays a role in motor behavior in the midbrain. Deterioration of dopaminergic neurons in the substantia nigra is associated with symptoms of Parkinson’s disease and is often treated with L-dopa, a dopamine precursor.

### 5. C - parasympathetic nervous system

The parasympathetic nervous system (“rest & digest”) reduces heart-rate, respiration, & muscle tension and increases digestion, reproductive function and immune function. This is the opposing system to the sympathetic nervous system (“fight or flight”).

### 6. B – temporal lobes

Information from the auditory nerves travels to the thalamus, then out to the temporal lobes on the sides of the brain (located near your temples).

### 7. D – corpus callosum

The corpus callosum (lit. “tough body”) is a dense band of nerve fibers which runs across the base of the longitudinal fissure separating the two hemispheres.

### 8. A - house

Information in the left visual field goes to the right hemisphere, which is incapable of controlling speech. But the right hemisphere controls the left hand (contralateral control), meaning the split brain patient could draw the information from the left visual field (and speak about information in the right visual field / left hemisphere).

### 9. B – action potential

When a neuron reaches the threshold for firing, ion channels open, briefly allowing sodium ions to flow in and temporarily giving the neuron a positive charge of +40mV (in contrast to its negative charge of -70mV at resting potential).

### 10. D - agonist

Agonist drugs increase receptor activation. Nicotine stimulates cholinergic (responding to acetylcholine) receptors, thus making it an exogenous (external origin) agonist.