**SHIOTA & KALAT, *EMOTION* 3rd edition TEST BANK, CHAPTER 6**

**Multiple Choice**

1. The central nervous system consists of:
   1. the brain and spinal cord.
   2. the nerves that carry information between the brain and visceral organs in the body.
   3. the nerves that carry information from the brain to the muscles.
   4. The central nervous system includes all of the above.
2. According to MacLean’s triune brain model, emotional responding emerged at a particular stage of evolutionary history, and as a result emotional processes are mediated by activity in a particular region of the brain. Which of the following was proposed by MacLean to be the “emotional” area of the brain?
   1. The amygdala
   2. The “reptilian” brainstem
   3. The “mammalian” subcortex or limbic system
   4. The “primate” neocortex
3. Several studies have shown that people with damage to the ventromedial prefrontal cortex (VMPFC) show greater risk-taking than people with no brain damage. Which of the following is a plausible explanation for this finding, considered on its own?
   1. The VMPFC is involved in inhibiting risky behavior.
   2. The VMPFC is necessary for perceiving situations as potentially dangerous.
   3. People who take a lot of risks are more likely to be injured in ways that damage the VMPFC.
   4. All of the above are plausible explanations of the finding.
4. Which of the following neuroscience methods is well-suited to asking whether a particular brain structure is *necessary* for producing some behavior?
   1. Lesion methods
   2. Electroencephalography
   3. Functional MRI
   4. Neurochemistry methods
5. Which of the following neuroscience methods uses sensors placed on the scalp to measure brain activity?
   1. Lesion methods
   2. Electroencephalography
   3. Functional MRI
   4. Neurochemistry methods
6. Which of the following neuroscience methods measures the difference between oxygenated and deoxygenated blood in the brain?
   1. Lesion methods
   2. Electroencephalography
   3. Functional MRI
   4. Neurochemistry methods
7. What exactly does functional MRI imaging measure?
   1. The electrical activity generated by neurons firing
   2. The amount of neurotransmitter activity in the brain
   3. The amount of blood flowing through each part of the brain
   4. The difference between blood with oxygen and blood without oxygen
8. In one study described in your textbook, researchers used fMRI to scan the brain of a dead salmon, first while the salmon was instructed to take the perspective of another species, and again during a control task. What conclusion did the researchers draw from the study?
   1. There is a distinct brain region associated with perspective-taking.
   2. Salmon are capable of empathy.
   3. Their data analysis approach, commonly used in fMRI research, is prone to confusing measurement noise with real effects, and producing false-positive results.
   4. The researchers concluded that the salmon was not actually dead.
9. Which of the following is an example of the reverse inference problem?
   1. Meredith notices that whenever her supervisor is embarrassed, he coughs. One day, the supervisor coughs while introducing Meredith to a colleague; Meredith concludes that he must be feeling embarrassed.
   2. Evan has noticed that he develops a headache every time he eats shellfish. He stops eating shellfish in an attempt to prevent future headaches.
   3. Amir notices that he gets better exam grades after studying outdoors than after studying indoors, so he plans to study outdoors more often.
   4. All of the above are examples of reverse inference.
10. The amygdala is an almond-shaped structure located within the lobe of the brain.
    1. frontal
    2. temporal
    3. parietal
    4. occipital
11. Philips and LeDoux (1992) conducted a study with amygdala-lesioned and control rats. The study used a fear-conditioning paradigm, in which rats learned that a certain tone predicted an electric shock. In what way did the amygdala-lesioned rats differ from the control rats?
    1. The lesioned rats did not appear to feel the electric shock as strongly as control rats.
    2. The lesioned rats were more easily frightened than the control rats.
    3. The lesioned rats did not “freeze” as long after hearing the tone as control rats did.
    4. The lesion and control rats differed in all of the above ways.
12. When people with amygdala damage undergo a fear conditioning procedure, in which a specific color is repeatedly paired with electric shock, which of the following happens?
    1. They are able to learn that the color predicts that a shock is coming.
    2. Their heart rate shows no response to seeing the shock-predicting color.
    3. Neither a nor b happens after fear conditioning in people with amygdala damage.
    4. Both a and b happen after fear conditioning in people with amygdala damage.
13. In a task in which participants read a long list of words, and are later tested for which words they remember, how do people with amygdala damage typically differ from people with no brain damage (or damage in a different location)?
    1. People with amygdala damage show worse memory than people without amygdala damage, in general.
    2. People with amygdala damage report finding the task less stressful than people without amygdala damage.
    3. People with amygdala damage remember emotional and neutral words at similar rates, whereas people without amygdala damage show better memory for emotional words.
    4. Both b and c are true.
14. According to researcher Elizabeth Phelps, the currently available research on the amygdala suggests that this structure serves which of the following functions?
    1. Amygdala activation produces the subjective feeling of fear.
    2. Amygdala activation directs attention preferentially toward emotional stimuli.
    3. Amygdala activation facilitates the formation of strong memory for emotional events.
    4. Both b and c are correct.
15. In post-traumatic stress disorder, people experience intrusive, vivid flashbacks to a traumatic experience they previously had. Given what you have learned about neuroanatomy so far, which of the following brain structures would you most expect to have strong involvement in the development of PTSD?
    1. The prefrontal cortex
    2. The amygdala
    3. The nucleus accumbens
    4. The ventral tegmental area
16. Which of the following functions is NOT served by the hypothalamus?
    1. It monitors temperature, and initiates physiological changes to keep temperature within a healthy range.
    2. It collects sensory information from the external world (e.g., pheromones) and adjusts behavior in response.
    3. It directs the release of hormones that control part of the stress response.
    4. It mediates conscious perception (interoception) of the state of internal organs, such as the stomach and bladder.
17. Which of the following brain structures has been described as the body’s “thermostat?”
    1. The prefrontal cortex
    2. The hypothalamus
    3. The nucleus accumbens
    4. The amygdala
18. Which of the following is the best definition of homeostasis?
    1. The regulation of temperature, hydration, blood chemistry and other factors into order to keep these within a healthy range
    2. The formation of vivid, stable memories by strengthening neural connections
    3. The determination of sexual orientation by regulating hormones in the body
    4. The tendency of the body to remain still, unless the environment provides strong motivation for movement
19. Which of the following brain structures plays the strongest role in sexual arousal?
    1. The amygdala
    2. The prefrontal cortex
    3. The hypothalamus
    4. The hippocampus
20. Which of the following brain structures has been most strongly implicated in drug addiction?
    1. The nucleus accumbens
    2. The hypothalamus
    3. The insular cortex
    4. The amygdala
21. Emily is visiting Las Vegas with some friends, and they decide to play roulette. Which of the following brain structures is especially likely to be activated after Emily has placed her bet, while she watches the wheel spin and waits for the result?
    1. The insular cortex
    2. The prefrontal cortex
    3. The hippocampus
    4. The nucleus accumbens
22. Emily is visiting Las Vegas with some friends, and they decide to play roulette. Which of the following brain structures is especially likely to be activated while Emily is deciding how much to bet on a given round, and where to place her bet?
    1. The insular cortex
    2. The prefrontal cortex
    3. The hippocampus
    4. The nucleus accumbens
23. Research indicates that the nucleus accumbens supports which of the following psychological processes?
    1. Appetitive motivation, or approach toward a sign of likely reward
    2. Enjoying a reward that is currently being consumed
    3. Learning to predict future rewards and punishments
    4. Research suggests that the nucleus accumbens is involved in all of the above.
24. Which of the following brain structures is thought to mediate the conscious awareness of the muscles and internal organs?
    1. The insular cortex
    2. The amygdala
    3. The ventral tegmental area
    4. The hypothalamus
25. Which of the following psychological processes is NOT mediated primarily by the prefrontal cortex?
    1. Planning
    2. Working memory
    3. Episodic memory
    4. Impulse inhibition
26. After a car accident in which his head hit the dashboard, Markus becomes increasingly impulsive, making poor decisions quickly rather than waiting to think them through. Markus likely experienced damage to his during the car accident.
    1. insular cortex
    2. prefrontal cortex
    3. hypothalamus
    4. hippocampus
27. Which of the following functions is mediated by the neurotransmitter dopamine?
    1. Initiating strong, controlled muscle movements
    2. Regulating cognitive activity in the frontal lobes
    3. Anticipation of and approach toward a desired reward
    4. Dopamine is involved all of the above functions.
28. Which of the following neurotransmitters serves as the body’s natural painkiller?
    1. Dopamine
    2. Serotonin
    3. Glutamate
    4. β-endorphin
29. Which of the following brain functions is mediated, at least in part, by the neurotransmitter serotonin?
    1. sleep
    2. memory
    3. appetite regulation
    4. All of the above
30. Your textbook describes two major studies examining brain activity during different emotions, one by Vytal and Hamann (2010), and one by Lindquist and colleagues (2012). Which of the following accurately describes an important methodological difference between the two analyses?
    1. One was a single, very large study with many participants; the other was a meta-analysis of smaller, previously published studies.
    2. One study asked whether specific brain structures were more active during one emotion than during other emotions; the other study asked whether patterns of activity across the whole brain differed across emotions.
    3. One study used electroencephalography (EEG) methods; the other used functional magnetic resonance imaging (fMRI) methods.
    4. None of the above accurately characterizes a difference between the two studies.

**Multiple Choice Answer Key**

1. the brain and spinal cord. (a)

2. The “mammalian” subcortex or limbic system (c)

3. All of the above are plausible explanations of the finding. (d)

4. Lesion methods (a)

5. Electroencephalography (b)

6. Functional MRI (c)

7. The difference between blood with oxygen and blood without oxygen (d)

8. Their data analysis approach, commonly used in fMRI research, is prone to confusing measurement noise with real effects, and producing false-positive results. (c)

9. Meredith notices that whenever her supervisor is embarrassed, he coughs. One day, the supervisor coughs while introducing Meredith to a colleague; Meredith concludes that he must be feeling embarrassed. (a)

10. temporal (b)

11. The lesioned rats did not “freeze” as long after hearing the tone as control rats did. (c)

12. Both a and b happen after fear conditioning in people with amygdala damage. (d)

13. People with amygdala damage remember emotional and neutral words at similar rates, whereas people without amygdala damage show better memory for emotional words. (c)

14. Both b and c are correct (d)

15. The amygdala (b)

16. It mediates conscious perception (interoception) of the state of internal organs, such as the stomach and bladder. (d)

17. The hypothalamus (b)

18. The regulation of temperature, hydration, blood chemistry and other factors into order to keep these within a healthy range (a)

19. The hypothalamus (c)

20. The nucleus accumbens (a)

21. The nucleus accumbens (d)

22. The prefrontal cortex (b)

23. Research suggests that the nucleus accumbens is involved in all of the above. (d)

24. The insular cortex (a)

25. Episodic memory (c)

26. prefrontal cortex (b)

27. Dopamine is involved all of the above functions. (d)

28. β-endorphin (d)

29. All of the above (d)

30. One study asked whether specific brain structures were more active during one emotion than during other emotions; the other study asked whether patterns of activity across the whole brain differed across emotions. (b)

**True/False**

1. Neuroscience has identified a distinct network of structures that mediate emotional experience – the emotion region of the brain.

2. Functional magnetic resonance imaging (fMRI) techniques measure the difference between oxygenated and deoxygenated blood in the brain.

3. Functional magnetic resonance imaging (fMRI) techniques can detect brain activity within 100 milliseconds of neural firing.

4. Evidence from lesion and fMRI studies indicates that the amygdala is necessary for the experience of fear.

5. When people with amygdala damage undergo fear conditioning, they understand that the conditioned stimulus (e.g., a color) predicts a shock, but show no physiological response to it.

6. Evidence suggests that the nucleus accumbens supports at least three distinguishable psychological processes.

7. Neuroscientists consider the insular cortex to be the brain region specifically responsible for the experience of disgust.

8. Selective serotonin reuptake inhibitors (SSRIs), drugs commonly prescribed to treat depression, do not typically show significant effects on emotion for the first two to three weeks.

9. Oxytocin nasal spray can be used as a “love potion,” as it makes other people in general appear more attractive.

10. Although many studies have examined brain activity during different emotions, meta-analyses of these studies have not yet determined conclusively whether the experience of different, basic/discrete emotions is associated with different patterns of activity.

**True/False Answer Key**

1. False
2. True
3. False
4. False
5. True
6. True
7. False
8. True
9. False
10. True

**Short Answer**

1. Your textbook described a study in which researchers used fMRI to scan the brain of a dead salmon, first while the salmon was instructed to take the perspective of another species, and again during a control task. (i) Describe the results of this study. (ii) Explain the conclusion that the researchers drew from these results.
2. Describe the “emotional facilitation of memory” task, and explain how the performance of a typical person with amygdala damage would differ from that of someone without brain damage.
3. Summarize the functions of the hypothalamus, and their role in emotion.
4. Explain the “wanting” versus “liking” distinction as described in the chapter on emotion in the brain.
5. List three functions of oxytocin, as described in your textbook.

**Short Answer Key**

1. (i) The researchers identified several small regions of the brain and spinal cord that were more active during the perspective-taking task than during the control task. (ii) The researchers concluded that, when statistical analyses examine differences in activation between two conditions for every voxel in the brain, some significant differences will appear even if they are meaningless (or in this case, impossible), just by chance.
2. (i) People normally show stronger memory for items (words, story elements) with strong emotional content than for more neutral items. (ii) Someone with amygdala damage would not typically show this facilitation effect, but would remember emotional and neutral content equally.
3. (i) The hypothalamus serves as the “thermostat” of the body, monitoring factors such as temperature, hydration, glucose levels and other aspects of blood chemistry, and initating corrective change when these go out of a healthy range. (ii) The hypothalamus also predicts when these factors are likely to go out of range due to aspects of environment and experience, including emotional stress. Many physiological aspects of emotional experience are driven by the hypothalamus, which is anticipating a disruption of homeostasis.
4. “Wanting” is eagerly anticipating some reward prior to receiving it, whereas “liking” is the sensory enjoyment of the reward while consuming it.
5. Answers will vary but may include: causes uterine contractions during labor; facilitates nursing in mammals (milk let-down); promotes pair-bonding between mothers and their offspring; increases commitment to romantic partners; and increases trust in social interaction partners.

**Essay Question**

1. Imagine that you had access to any technology needed to study activity in the brain – even technologies that have not yet been developed, but that you can imagine. If you used these technologies to study brain activity during human emotion, what would basic/discrete emotion theory predict you will find? What about psychological construction theory? What about the component process model?