Study Guide for Midterm Exam 1

Appendix 1 – Methods

** Study the bolded terms from the chapter and know how they relate to each other.

1. Define and explain the role of independent and dependent variables and of experimental and control groups in an experiment.

2. What are the strengths and limitations of correlational research? Of experimental research? Why don’t correlations imply causation?

3. Contrast self-report and observational methods of data collection, and describe the purposes, advantages, and limitations of each.

4. What is a confounding variable? Define placebo effect.

5. Why is proper sampling important in research?

6. What are some ethical issues in psychological research?

Chapter 6 – Perception

1. What are the Gestalt principles and how they might account for (or explain) a visual illusion (either one from the textbook, from lecture, or from your own experience).

2. Describe the different processes used by people to interpret depth in their visual environment, both monocular cues and binocular cues.

3. Give examples from the visual and auditory domains for how context can play a role in perception.

4. What is the difference between a bottom-up process and a top-down process in perception? Give an example of each.

5. What is Feature Integration Theory? Why does it predict that people will make illusory conjunctions?

6. What are the “what” and “where” systems in the brain? What evidence exists for this distinction?

7. How does attention influence perception? What kinds of perceptual processes require attention? What kinds of perceptual processes do not require attention?

8. What function do perceptual constancies serve? How are they helpful to understand our environment?
Chapter 2 – Biological Bases of Behavior

** Study the bolded terms from the chapter and know how they relate to each other.

Discussion Questions

1. Indicate the advantages and disadvantages of studying the human brain by clinical observations of patients with brain damage.

2. What are the advantages and disadvantages of each of the neuroimaging and other techniques for exploring the brain? Evaluate ease of obtaining information, invasiveness, ethical concerns, and type of information (activity, structure) obtained.

3. Describe the basic anatomy of the brain, including general functions of each area.

4. Distinguish the peripheral and the central nervous system, and the somatic and autonomic nervous system.

5. Explain the nature and functions of the convolutions of the cortex.

6. Explain the meaning of lateralization, and how the brain organization of left-handers differs from that of right-handers.

7. What does research on people with split brains tell us about the differences between the cerebral hemispheres?

8. What is a neuron? What are dendrites, the cell body, the axon hillock, the axon, the myelin sheath, and the nodes of Ranvier?

9. Describe the nature and function of glial cells.

10. Explain the mode of action of the endocrine system. What are the similarities and differences among the types of interaction and transmission in the nervous and endocrine systems?

11. Describe how recovery of damaged neurons, collateral sprouting, and substitution of function allow for recovery from the loss of nerve cells in cerebral lesions

12. What are the differences among the three modes of recovery from cerebral damage: self-repair, transplantation, and rehabilitation.
Chapter 3 – Motivation

** Study the bolded terms from the chapter and know how they relate to each other.

Discussion Questions

1. Describe the action of negative and positive feedback systems. Give examples of negative and positive feedback systems from modern technology.

2. What is homeostasis?

3. Describe the emergency reaction. What role does the sympathetic arousal system play in the fight or flight response? Discuss the biological survival value of the emergency reaction.

4. How are fear, rage, and predatory attack responses organized in the central nervous system? What is the role of the limbic system?

5. Describe the immediate disruptive effects of sympathetic arousal, and possible long-term effects on health.

6. Describe adaptive and maladaptive aspects of pain.

7. What is the placebo effect? How has it been shown that some of the placebo effect for pain is mediated by the endorphin system?

8. Describe the role of cortical and subcortical areas in wakefulness.

9. Describe the stages of sleep and the two kinds of sleep. What are the effects of sleep deprivation?

10. What is the relation between REM sleep and dreaming? Why is our memory for dreams so poor? What is the function of dreaming?

11. Describe the opponent process theory of motivation. How do studies of drug addiction support this theory?

12. What do studies of electrical stimulation of the brain tell us about motivation? Are there both general and motivation-specific pleasure centers in the brain?

13. Explain the dopamine hypothesis of reward, and indicate how it may account for the rewarding effects of stimulant drugs.

14. Indicate how the biological basis for motives interacts with individual experience (learning).
**Study the bolded terms from the chapter and know how they relate to each other.**

**Discussion Questions**

1. Describe the process of kinesthesia.
2. Describe the process of touch.
3. Describe the process of gustation.
4. Describe the process of olfaction.
5. Describe the process of hearing.
6. Describe the process of vision. Be familiar with the following terms: rods, cones, bipolar cells, ganglion cells, optic nerve, and blind spot.
7. What are four principles that govern the structure of all sensory systems? Give examples.
8. What is sensory adaptation? What does the organism gain from sensory adaptation? What is the biological significance of involuntary eye movements?
9. What is the physiological mechanism that underlies Mach bands?
10. What are complementary colors? How do their complementary characters account for simultaneous color contrast and negative afterimages?
11. What is the opponent process theory of color vision? What is the relevance of primary colors, color antagonists, and inhibition in the perception of hue and brightness? What is the physiological evidence for the opponent process theory?
12. What do electrophysiological studies of the action of single neural cells tell us about the perception of contours?