

Bi150 Problem Set 6

Due: Tuesday, November 29th at 4:30 P.M.

At the “Bi 150 Box”

3rd floor of Kerckhoff in front of Room 326

(The building may be locked after 5 P.M.)

INSTRUCTIONS

Please:

- 1) Turn in your work with this cover page.**
- 2) Use separate sheets of paper for the answer to each question, so that grading can proceed in parallel**
- 3) Write or type your answers neatly.**
- 4) Put your name on each page of your answers.**

Name: _____

Section #: _____

Mail Code: _____

TA Name: _____

Date and Time turned in: _____

Number of pages including this one: _____

There are 2 questions.

Grade and Comments:

1 _____

2 _____

Total: _____

Problem 1. Learning & Memory (1.5 points)

A. (0.4 point) Explicit Memory

- a. Define both episodic and semantic memory (in a sentence or two each).
- b. Give an example of each of these two kinds of memory (in a sentence or two).
- c. Which broader category of memory do they fall under? (one or two words)
- d. Where would a brain lesion most specifically impair episodic memory? (name the brain region/structure)
- e. Where would a brain lesion most specifically impair semantic memory?

B. (0.6 point) Implicit Memory

- a. **(0.2point)** Label the following forms of learning as either associative or non-associative:

sensitization
habituation
classical conditioning
operant conditioning

- b. **(0.4 points)** Provide a short paragraph each describing an example of how one would demonstrate each of the above 4 forms of memory experimentally. Describe what you would do and what you would measure in the experiment, and be sure to explain how your particular description makes this kind of memory different from the others.

C. (0.1 point) In humans, what is the most obvious difference in retrieval of the two major memory forms described in part A and part B?

D. (0.4 point) Stages of memory

- a. Name and briefly describe four distinct stages in time at which learning and memory operate.
- b. What is the difference between iconic, working (short-term), and long-term memory? Include in your answer the time scale over which each of these different forms of memory is active and the brain region(s) thought to be involved in humans.

Problem 2. Neurological Diseases (3 points)

Watch ****one**** of these movies.

The Library now has at least one copy of each DVD on overnight reserve.

Alternative strategy: read one of the books.

	condition	Netflix instant	Amazon instant*	iTunes Rent	Based on Book?
<i>Awakenings</i>	Parkinson's	y	y	y	O. Sacks, <i>Awakenings</i>
<i>Iris</i>	Alzheimer	n	y	y	Bayley, <i>Elegy for Iris</i>
<i>Temple Grandin</i>	Autism	n	y	n	<i>Thinking in Pictures</i> ; or <i>The Way I see it</i>
<i>Song for Martin</i>	Alzheimer's	y	y	n	in Danish (for Laurits)
<i>Rain Man</i>	Autistic spectrum	n	y	y	Fran Peek, <i>The Real Rain Man: Kim Peek</i>

(* None of the movies are available on Amazon Prime)

Write ~ 300 words. Address each of these questions.

- a. **How realistic is the film or script (not applicable if you read the book instead)?**
- b. **What are the range of symptoms for the condition?**
- c. **What might cause it?**
- d. **What are possible genetic bases?**
- e. **What drugs are used for this condition? How effective are they? What are their side effects?**

Available Resources:

lecture notes;

Kandel;

The Web site of the National Institute of Neurological Diseases and Stroke,

<http://www.ninds.nih.gov/>