

**9.00 Introduction to Psychology
A Harry Potter Midterm
19 October 2000
178 (+2) total points**

Since my household is currently somewhat obsessed with the Harry Potter books, it seemed like a good idea to use the first one as the basis for the midterm. PLEASE NOTE: The book provides a fine story line but you don't need to know anything about it in order to do well on this exam. If you think that the story is confusing you, please ask and I will explain the meaning of any question. We are not trying to be tricky. Write your answers on the exam. Use the back of pages if needed. Good luck.

In the first chapter of the book, Harry Potter is a one year-old baby. He is being left on the doorstep

SCORE
p1 _____ of 10
p2 _____ of 25
p3 _____ of 25
p4 _____ of 23
p5 _____ of 30
p6 _____ of 15
p7 _____ of 20
p8 _____ of 30
TOTAL

of his aunt and uncle (Petunia and Vernon Dursley) because his parents have just been killed in a confrontation with the evil wizard, Voldemort. Voldemort tried to kill Harry, too, but the spell backfired and seems to have nearly destroyed Voldemort. Harry escaped with nothing more than a distinctive scar on his forehead.

#1. (5 pts) Suppose that Voldemort's spell had damaged the bit of brain just under Harry's forehead. Harry would then have a lesion of his

- a) frontal lobes b) parietal lobes c) occipital lobes
- d) temporal lobes e) cerebellum f) a & e (they are the same thing)
- g) none of this makes sense to talk about in a 1 year-old

#2. (5) That lesion would be likely to produce which of the following symptoms

- a) Harry would have a scotoma, abnormal hole or blind spot in his visual field
- b) Harry would be unable to form new short term memories
- c) Harry would be unable to form new long term memories
- d) Harry would be unable to learn to speak
(Of course, he can't speak much yet. He is only one.)
- e) b & c f) all of the above g) none of the above

#3. (10) Even though Harry is now famous in world of wizards, it is deemed best that he be raised by the Dursleys who are not wizards and, in fact, hate (or are terrified) by everything connected to the world of wizards. Chapter two begins ten years later. We find out that Harry has had a lousy decade. The Dursleys are really rotten to him. He lives in a cupboard under the stairs while the Dursleys lavish their attention on their spoiled rotten son, Dudley. Today is Dudley's birthday. He is receiving 37 large presents and is throwing a tantrum because it is not enough. The problem is

that Dudley gets so much stuff all the time. Assume that Dudley was once content to receive just a few presents. Pick one of these lines as a starting point

- a) This is an example of extinction but not of instrumental conditioning
- b) This is an example of blocking but not of extinction
- c) This is an example of habituation but not of aversive conditioning
- d) This is an example of a conditioned response without an unconditioned response.

Then please explain your answer (p118 = The page where the answer would be,)

#3.5 (2) You get two extra credit points if you can say anything about the guy who just got the Nobel Prize for studying this phenomenon in a different organism.

#4. (10) The Dursleys planned to take Dudley to the zoo for his birthday and to leave Harry with Mrs. Figg, a revolting neighbor, but Mrs. Figg broke her leg so it is decided that Harry will have to come to the zoo. This makes Dudley throw another tantrum. The tantrum is unpleasant. To stop it, Mrs. Dursley promises to give Dudley *another* present. Dudley stops howling. Can you explain Mrs. Dursely's behavior as an example of instrumental (or operant) conditioning? Please explain.

#5. (5) If we think about Dudley's behavior, this latest gift would be described as an example of

- a) classical conditioning b) extinction c) reinforcement
- d) intrinsic motivation e) auditory agnosia f) none of the above

#6. (10) Based on our knowledge of animal behavior (e.g. Thorndike's cats, Skinner's pigeons) would the gift (or the promise of the gift) make Dudley more likely or less likely to wail in the future? Your answer should include the term "the Law of Effect" but a good answer will get a bunch of points even if you don't know Thorndike's Law of Effect.

#7. (15) On the way to the zoo, Harry mentions that he dreamed about being on a flying motorcycle. As it happens, Harry was delivered to the Dursley's on a flying motorcycle when he was 1 year old. Given that fact, let us treat this dream as a possible memory. What do you think? Could it be a real memory? You can argue for a "yes" or "no" answer but your answer must be backed up by **three** facts from the course. Experiments are good facts. Anecdotes and stories are not as good. You can even argue for both sides with facts from each side.

#8. (15) At the zoo, things go pretty well for Harry until they reach the reptile house. There Dudley is bothering a big boa constrictor. The snake ignores him but when Harry comes for a look, Harry finds that he seems to be able to talk with the snake. This is pretty strange, but let us suppose that snakes really do have a spoken language like a human language. We would expect that language to have three of the four following terms. Pick the correct three and define them (on the next page)

- a) syntax b) morphemes c) cingulate structure d) phonemes

8.1

8.2

8.3

#9. (5) Unfortunately, Dudley saw Harry apparently talking to the snake. He got all excited. Harry got knocked out of the way and somehow, mysteriously, the glass front of the snake's cage vanished. The snake slithered out. It didn't hurt anyone but as punishment, Harry was locked in his cupboard in the dark. It wasn't completely dark. The light was equivalent to moonlight (scotopic light levels, if we are going to be technical). Which of the following is true about Harry's vision under these conditions? (Pick as many as you like).

- a) He would not be able to see colors.
- b) Dim light contains only lower frequency electro-magnetic waves that are achromatic (colorless)
- c) His cones would be inoperative because their photopigments would be fully bleached.
- d) His rods would be inoperative because their photopigment would be fully bleached.
- e) His vision would be similar to daytime vision because his pupils would dilate to completely compensate for the reduced light level.
- f) Some of the above, but it is a secret.
- g) none of the above.

#10. (3) A few weeks later, a letter came for Harry. This was noteworthy since he never received mail. He read the address.

Mr Harry Potter
The Cupboard under the Stairs
4 Privet Drive
Little Whinging
Surrey, England

At that point, his uncle ripped the letter out of his hands and destroyed it. Even though he had not gotten to see what was in the envelope, Harry could remember every word of the address. That is 14 letters and a number. Is this surprising? It might be. After all, the capacity of short term memory is only about _____ items.

#11. (10) Assuming that your answer to #10 is less than 14 (It better be), does Harry's ability to remember the whole thing suggest that he has a special memory? Why or why not? Be sure that your answer reveals some knowledge of the workings of human memory.

#12. (20) The letters keep coming. They squeeze under the door when Uncle Vernon blocks the mail slot. They come down the chimney. Eventually, Uncle Vernon puts everyone in the car and leaves home. The letters find Harry at "Rm 17, Railview Hotel, Cokeworth". Finally, Uncle Vernon thinks he has found the perfect place to hide from the mail. "Uncle Vernon was pointing at what looked like a large rock way out to sea."

Why does it look like a large rock way out to sea and not a small rock that was much closer? Please describe **five** depth cues. For each cue, tell us if it would help to discriminate between a close rock and a far rock. You can invent any useful visual details that you need (boats in the harbor, whatever) and you can draw pictures. Don't just name cues.

#13 (10) Harry and the Dursleys reach the miserable little shack on top of the rock. It gets dark. A storm blows up. Lots of things are banging around. At midnight, Harry thinks he hears knocking at the door. Dudley is pretty sure that it is just the wind banging the shutters. They listen to the next 100 bangs. 50 of these are just the wind. 50 of them are actually the wind plus a knock. Harry and Dudley don't know this. They guess, for each one, if it was the wind or a knock. The data are shown below.

		HARRY				DUDLEY	
		Was Knock	Was Wind			Was Knock	Was Wind
Say Knock		25	7	Say Knock		3	0
Say Wind		25	43	Say Wind		47	50

Obviously, the results differ. Does this show that they have different sensitivities to the knock stimulus? Could two observers with exactly the same sensory capabilities produce these two different sets of data. If so, how could that be? If not, why not? Your answer should refer to Signal Detection Theory (p176) but creative answers of other sorts will be considered, too.

#14. (5) Someone was knocking. They find this out when the door is knocked off of its hinges and a gigantic man squeezes into the shack. This scares the Dursley's nearly out of their wits. Which of the following statements is true about the response of the body to threat.

- a) The adrenal medulla (part of the adrenal gland) will pour epinephrine (adrenaline) into the bloodstream (92).
- b) Digestive activity will be decreased (93)
- c) The limbic system of the brain will be crucial to the response to threat (95)
- d) The Dursley's reaction to threat could be measured by changes in the Galvanic Skin Response (GSR, p94).
- e) a & d f) b, c, & d g) a & c h) a, b, c & d

#15. (5) The giant introduces himself as Hagrid, Keeper of Keys at Hogwarts. This does not make any sense to Harry. Hagrid gives Harry his letter which explains that Harry has been accepted to Hogwarts School of Witchcraft and Wizardry. Uncle Vernon says he is not going.

Who is not going? The sentence "Uncle Vernon says he is not going." is ambiguous (363). In this case, that means

- a) that the word "he" is composed of two morphemes.
- b) that there are two possible underlying structures that could yield the surface structure of this sentence.
- c) that the syntax of this sentence is incorrect.
- d) that a child could not comprehend this sentence.
- e) there are two syntactic contents supported by the same semantic structure
- f) none of the above
- g) I don't know but smoking volcanoes can be dangerous.

#16. (10) There are ambiguous utterances in language. There are ambiguous figures in vision, too. The Necker cube would be an example. This is not a coincidence. There are similarities between language comprehension and vision. How do ambiguous stimuli illustrate the similarities in the normal processes of vision and language comprehension?

#17. (5) Hagrid is enraged to discover that the Dursely's have told Harry nothing about his parents and his personal history. They told him that his parents had died in a car crash. Hagrid can become a little rash when he is enraged. With a wave of his umbrella, he causes Dudley's brain to go back to the way it was when he was 6 months old. Assuming that Dudley was behaving like a normal one year old, which of the following would be true? (Pick as many as you like)

- a) Dudley would be able to sense 3D depth and would not crawl off a cliff (e.g. visual cliff p553).
- b) Piaget would characterize Dudley as being in the "preoperational" stage and would expect him to show egocentric behaviors (551).
- c) Piaget would expect Dudley to fail tests of object permanence (547).
- d) Dudley would show elementary sensitivity to syntax. For example, he might make a distinction between the meaning of the utterances "Mommy loves Dudley" and "Dudley loves Mommy" even though he might not be able to say these things himself yet (377)
- e) None of the above

#18. (10) Fortunately, this spell wears off quickly. In a few minutes, Dudley has reached the stage of cognitive development where he exhibits what Piaget would have called "failures of conservation" (549). Dudley might show a failure to conserve number or liquid quantity or mass quantity. What does this mean? Please give an example of a conservation task and how a little kid might fail it.

#19. (10) Mr. Dursley protests about the spell that Hagrid put on Dudley but Hagrid just says "Ah, go boil yer head or I will inactivate your hippocampus." If Hagrid did inactivate Mr. Dursley's hippocampus bilaterally what effects would you expect?

#20. (10) Hagrid tells Harry that he will learn all sorts of wonderful things at Hogwarts. I am hoping that the same is true for you at MIT. Specifically, please describe one of the demos that you have seen in the recitation sections of Psychology. Make sure that we can figure out what demo you are talking about (even if you don't remember its name). Do not say "I am writing about Sarah's demo." Describe the demo and then it is critical that you explain why it is interesting, important, etc.

Wow....I only got to p60 of book 1 and there are 4 Harry Potter books so far.....