Learning 1

1. What are some reasons why researchers interested in learning may have chosen to study simple organisms learning simple patterns rather than human students learning, for example, calculus?
2. Describe the *testing effect* and an example of the research that supports this concept. Discuss its practical implications.
3. Imagine that you are using flash cards to learn vocabulary words. It seems efficient to drop cards from the deck once you have gotten them right once or twice; what might be wrong with this procedure?
4. Describe Bjork's principle of *desirable difficulties*. Discuss its implications.
5. You want to learn some new material. You can either read through it 4 times or read through it once and be tested on it 3 times. If, after completing one or the other of these two procedures you wait 5 minutes and are then tested, which of the two procedures will probably produce better retention? What about if you wait a week? How might these results help us understand why people might be confused about how they learn most effectively?
6. Discuss why each of the following two common beliefs about learning is wrong: (a) Learning occurs primarily when people encode knowledge and experiences; (b) Retrieval of learned information can be used to measure learning, but retrieval does not itself produce learning.

Learning 2

7. Describe the important structural difference between habituation and conditioning.
8. What are *elicited behaviors*? Using examples, discuss how elicited behaviors might shed light on the debate between *nativists* and *empiricists* about the flexibility of behavior?
9. Habituation has been used as a tool by researchers studying infants and animals. Explain the role of discrimination and generalization in this approach.
10. How does *sensitization* change elicited behaviors? What causes sensitization? Describe an example.
11. Using examples discuss how habituation/dishabituation can play important roles in our daily lives.
12. Discuss how classical and instrumental conditioning can be understood as mechanisms through which organisms learn about causal relationships.
13. Using examples make the argument that our fears are not always rational. Discuss why this might be true and why it is important.
14. What does it mean to say that some fears are "hardwired"? Describe results that support this hypothesis. What are the limitations of genetically determined fears?
15. What is *fear conditioning*? Describe procedures that could be used to condition fears? How does fear conditioning differ from observational learning?
16. Watson and Rayner (1920) originally argued that phobias are simply intense classically conditioned fears that develop when a neutral stimulus is paired with a traumatic event, such as in their experiment involving Little Albert. This view point was then challenged. Using examples discuss what these challenges were, how they

were overcome, and why classical conditioning is once again used to help us understand phobias and other anxiety disorders.

17. Using examples, describe some factors that can increase/decrease the likelihood of an anxiety disorder developing after a traumatic event?

Learning 3

18. Using examples, contrast *positive* and *negative reinforcement* and *punishment.*
19. Describe the process of *neural messaging*. Your description should define and include the following terms: *presynaptic neuron, postsynaptic neuron, axon, dendrite, neurotransmitter, excitatory synapse,* and *inhibitory synapse*. How does neural messaging determine the actions of the receiving neuron?
20. What is *Hebb's rule*? What does it tell us about *synaptic plasticity*?
21. How does a neuron implement Hebb's rule?
22. What is the *amygdala*?

Learning 4

23. Newborns, both humans and other animals, rely on both innate and acquired knowledge to survive. What is this distinction? What might be the advantages/disadvantages of each? What role does conditioning play?
24. Why might it be difficult for newborns or adults who do not know a particular language to find the words within continuous speech in that language?
25. What are *statistical regularities*? What role might they play in word segmentation? Within this context, what is the statistical regularities hypothesis?
26. What are transitional probabilities? It seems unlikely that infants compute them – or adults for that matter – how then might we be aware of them and able to use them?
27. Describe how habituation might be used to assess the knowledge of infants.
28. Briefly describe the evidence that suggests that the ability to use statistical regularities is innate and not limited to speech or humans.