Psychology 201: Final Exam Review Sheet

# Introduction to Cognition

1. What is the general definition of “cognition”?
2. With what perspective was Watson associated? Can you think of any criticisms to his perspective?
3. What is cognitive psychology?
4. Describe cognition as a ‘complex’ process. What does it involve?
5. Understand the theoretical AND practical reasons for the study of cognition. Link this to prediction, understanding, and controlling human behavior.

# History of Cognition

1. What does it mean to say that humans are “information processors”?
2. What are mental representations? How does this contrast with mental processing? How do these two concepts overlap?
3. Describe Wundt’s contributions to the field of cognition. How did this later influence other researchers like Ebbinghaus and James?
4. Define “Functionalism”. Be specific!
5. Explain how Functionalism differs from Behaviorism.
6. What is Gestalt psychology? Understand the major grouping principles of Law of Proximity, Similarity, Closure, Continuity, Reification, Multistability, and Invariance
7. What role did the rise of artificial intelligence research and linguistics play in terms of shaping cognitive psychology as a discipline?
8. Understand the impact of the cognitive revolution in the 1960s on human behavior research.

# Cognition and the Brain

1. What is phrenology? What aspects of this research were flawed? What good came from it?
2. Describe the difference between serial search and parallel search.
3. What is brain localization? What evidence is there to support this concept?
4. Understand the major lobes of the brain, and the role of the cerebellum.
5. Be prepared to identify various elements of the nervous system (i.e., PNS, CNS, SNS, etc)
6. What is the Golgi stain? What did this contribute to cognitive psychology?
7. Compare/contrast the 4 major ways researchers gather behavioral data.
8. What is a ceiling effect? What is a floor effect? Which is worse?
9. What are expectancy effects?
10. Explain how instrumentation issues impact the quality of data gathering.
11. What does attitude accessibility refer to in terms of evaluating stimuli?
12. What do the WISC Card Sorting Task and Clock Drawing Task demonstrate in cognition (and clinical) research?
13. Compare/contrast (a) CT scans, (b) fMRI/MRI, (c) PET scans, and EEGs.

# Sensation and Perception

1. What is sensation? Contrast this with perception.
2. What does it mean to be “data-driven”? How does thinking shift to become more “conceptually-driven?”
3. Define parallel processing. How does the Stroop Effect demonstrate this?
4. What are feature detector neurons?
5. Explain the basic sensory system, along with the stimulus and receptors responsible for the process of transduction.
6. What is contrast sensitivity? How can it be improved?
7. What is the Muller-Lyer Illusion? What does it help describe?

# Mental Imagery and Mapping

1. What is mental imagery? Why did Behaviorists disagree with it?
2. Understand the differences AND similarities between perception and mental imagery.
3. Define the dual-coding hypothesis.
4. Define the conceptual-propositional hypothesis.
5. Define the functional-equivalency hypothesis (*careful with this one!* What is perceptual overlap?)
6. Compare/contrast automatic vs. controlling processing. What does this have to do with mental imagery?
7. What are cognitive maps? How are they formed?
8. Define route knowledge vs survey knowledge. Which is more difficult to create, and why?
9. Define mental rotation. What did Feng et al (2007) have to say about this?
10. What did Wu and Spence (2013) discover with regard to playing action video games and visual search?
11. To what extent does angle of mental rotation impact reaction time on an experimental task?
12. Identify factors that contribute to the formation of cognitive maps (including social factors)
13. Why do we create ‘cognitive short-cuts’ with cognitive maps? What purpose does this serve?
14. Define spatial iconicity.

# Attentional Processes and Cognition

1. What is attention? What is signal detection and vigilance?
2. What does research by Loftus (1978) remind us about conceptual dysfluency?
3. What is meant by the phrase “overactive top-down processing” (*careful….this is surprisingly complex*!)
4. What is meant by the phrase “perception without attention”? What are some advantages and disadvantages?
5. What is meant by the phrase “perception requires attention”? What are some advantages and disadvantages?
6. Define consciousness.
7. Compare mental rebound effects with mind wandering.
8. Explain the process of selective attention.
9. What is dichotic listening?
10. What is divided attention? What facts impact this (and other) attentional processes (*hint*: there are roughly 4)
11. Compare/contrast inattentional blindness with change blindness.
12. Compare/contrast gal-directed attention with stimulus-driven attention.
13. Describe attentional blink. Think of some examples not covered in class, or readings.
14. Describe cognitive load. How is it generated?
15. Explain Treisman’s Attenuation Model. What is “subjective loudness”?
16. Explain Treisman’s Feature Integration Theory. What is feature vs conjunctive search? When is one utilized over the other?
17. Understand Kahneman’s Capacity Theory, and the impact of cognitive load.
18. What is Similarity Theory? How does it compare to other attentional theories?
19. What is Guided Search Theory? How does it compare to other attentional theories?
20. Recognize the “bottleneck” vs. “filter” interpretation of attentional theories.
21. Define 1-2 points of consideration (i.e., limitations) of some research on attention and focus.

# Attention and Memory

1. Understand the Informational Processing Model of memory.
2. Compare sensory memory, short-term memory, and long-term memory as it applies to specifically to cognition and mental processing.
3. Understand research conducted by Loftus and Palmer (1976) and information recall.
4. What are some issues with the reliability of eyewitness testimony?

# Spatial Knowledge and Visual Memory

1. Explain Developmental Topographical Disorientation Disorder, including differences between egocentric disorientation, landmark agnosia, heading disorientation, and anterograde disorientation.
2. Clearly describe the semantic congruity effect.
3. Compare mapping and internalization as a function of exploration vs. learning
4. Contrast analog (prototype) representation and propositional (symbolic) representation.
5. Is there an advantage with regard to cognitive processing for prototype vs. symbolic perspectives of mental categorization?
6. Be prepared to identify how the role of video games impact spatial capabilities as a result of emerging research discussed and shown in class.
7. Spiers and Maguire (2005) produced interesting effects on simulated environments and spatial knowledge. What were they?
8. Understand the 4 models of recognition through exemplar variations (e.g., template matching, feature matching, recognition-by-components, configural models)
9. What is agnosia?
10. How is prosopagnosia different from achromatopsia, synesthesia, and akinetopsia?
11. Explain the role of apraxia in terms of disrupting planned movement.
12. Contrast ageusia with anosmia.
13. Define Broca’s aphasia and how it differs from Wernicke’s aphasia. Identify what areas of the brain are primarily involved for both.
14. Describe sensory modulation disorder, including the difference between under-and over-responses to stimuli.

# Language

1. Identify the difference between denotative and connotative meanings behind language.
2. Chomsky maintained several aspects of language are tied to syntax. What does this mean?
3. Understand different evaluations of language theory and cognition, including Behaviorist, Generatative Linguistic, Connectionism, and Neuroscience perspectives.
4. Explain the role of assimilation and accommodation as it applies to language acquisition and processing.
5. Planet of the Apes will never happen (based on current Hollywood interpretations). Why?
6. What is linguistic determination?
7. What are pragmatics? How does top-down processing shape this aspect of language?
8. Define the Saphir-Whorf hypothesis.
9. Speed reading skills can be learned. Identify 1-2 ways in which this form of cognition can be shaped.

# Decision Making and Problem Solving

1. Clearly define problem vs. choice.
2. What does Ellsburg’s Urn tell us about ambiguity and decision making?
3. Contrast routine choice, randomized choice, optimizing, and satisficing, including the pros/cons of each.
4. Contrast selection-by-elimination with deferring to authority, voting, and consensus, including the pros/cons of each.
5. Understand Prospect Theory, and the Prisoner’s Dilemma with regard to choice.
6. What is endowment theory?
7. Explain the role of risk as it applies to Mood Maintenance Theory
8. What is the difference between illusion of choice and illusion of control? How are these concepts similar?
9. Define key aspects of positivity and negativity bias in terms of problem solving.
10. What does it mean to be a cognitive miser?
11. Describe the difference between false hope and sunk cost.
12. Contrast misrepresentation, false decentralization, and rationalization.
13. Understand how schemas differ from heuristics, and how each drive human thinking and behavior.
14. Define the availability heuristic, representative heuristic, recognition heuristic, and anchoring heuristic.

# Emotion and Cognition

1. What is the mere exposure effect and how does in influence cognitive fluency?
2. Research by Bower (1980s) found surprising results with regard to emotion and person evaluation. What were some outcomes of that research?
3. What are some cognitive consequences of envy? (see Hill et al., 2011)
4. Describe amygdala localization.
5. Understand the facets of Cognitive Appraisal Theory and how emotion might influence each stage of the model.
6. The Yerkes-Dodson Law suggests important elements of emotion are tied to perception and performance. Be prepared to describe this theoretical model.
7. Define “flow” states, and transient hypofrontality.
8. The choice to delay gratification has a number of positive outcomes. What are they?
9. What types of appraisal can be used to aid emotional regulation? Is one better than another?

**Creativity and Expertise**

1. Define convergent vs. divergent thinking as it applies to creativity.
2. What are 3 important dimensions of creative thinking?
3. Being creative “on cue” can be difficult. Describe why this might be the case.
4. Forster et al. (2005) have some ideas about fostering creativity. What did their research discover?
5. Describe in detail the “Four C Model” of Creativity.
6. Understand differences in novice vs. expert thinking styles, as well as pros/cons for each.
7. Identify major “creative heuristics” scientists now recognize as important determinants of creative thinking.
8. Explain “The 6 Thinking Hats” creativity model as well as examples for each.

**Reasoning and Logical Thinking**

1. Know the difference between deductive and inductive thinking.
2. What is the belief bias effect?
3. Describe Watson’s card selection task, and how imagery impacts performance on the test.
4. Understand present-day advances in artificial intelligence (AI) along with shortcomings.
5. Why do many AI find difficulty with “simple” object recognition tasks?
6. Contrast cognitive robotics with synthetic characters in terms of AI technology and utilization. What purpose does AI in these forms potentially serve? Understand key aspects of why replication of human cognition is difficult according to current AI models.
7. What does the Chinese Room Argument propose about AI thought and intelligence?
8. Describe the Turning Test, as well as the validity of the assessment (or lack thereof).