

Sample Short Answer Questions

Cognitive Psychology – PSYC325

Please find the sample exam questions for the first exam (available through web-CT from 9/30 at 12 am until 10/02 midnight) below. For the exam, we will present you two randomly selected questions from this set and you will have to choose one to answer. Only one answer will be scored for the short answer portion. Please make sure that your answer is concise and addresses all of the parts of the question directly.

1. Try to define what cognitive psychology is about. What are the main topics? What are some basic assumptions? What are some of the different methods employed by cognitive psychologists?
2. Milner and Goodale distinguish 2 different visual processing pathways. Please name each one and describe the type of information that is processed in each. Provide descriptions of how researchers (not necessarily Milner and Goodale themselves) have been able to empirically demonstrate the differences between the two systems. You should list three substantially different approaches to this research question (hint: you can draw on animal studies, neurological case studies, experimental studies with “normal” human participants, correlational studies, and computer simulations for examples)
3. Name four different principles of grouping and give a good example for each one. Using examples from your own experience, where and how are these grouping principles employed by designers.
4. Name the four different main cortical areas (lobes) and describe their position on the cortex. After naming them, please describe the type of cognitive processing that each of the areas is primarily responsible for.
5. James Gibson’s theory of ecological / direct perception emphasizes one particular aspect of vision and the viewer. Please give a brief overview about the central claims of the theory and then provide at least two different applications / examples of these ideas in real-world tasks.
6. In cognitive neuroscience, researchers have often asked the question of where a particular mental function might be located in the brain. Please describe 4 different methods used in human neuroscience to identify the regions of the brain that are involved in particular cognitive activities. Next, give a description of an exemplary “hypothetical” study for each one.
7. Describe the basic idea behind the concepts of bottom-up and top-down processing in the context of perception. Give one example for each one that nicely illustrates the concepts. Finally, explain why the word-superiority effect is considered a good example of top-down processing (obviously you should not use this effect as one of the examples before.)

8. Please describe template matching models vs. feature based models in visual perception. What are the main assumptions of each approach. What are some common problems of the template matching models and how might they be remedied? Describe Biederman's geon model of object perception and discuss whether it follows a feature model or a template matching model.
9. Describe the main results from experiments on visual search and explain them using Treisman's feature-integration theory. How would you use this knowledge if you had to design a visual display and you wanted to draw an observer's attention to one particular region of the display (give 3 different examples)
10. Treisman found the following effect: If a person is listening to a message presented to one ear and is asked to ignore a second message presented to the other ear and the presentation suddenly switches between the ears, people switch their attention to the previously unattended ear. How does this result pose a problem for Broadbent's theory of attentional filtering? In answering this question, please first describe briefly the main gist of Broadbent's model, describe the implications of the experiment mentioned above in relation to the model, and list the main points of Treisman's revision of the model.
11. Camouflage is the natural counterpart to visual pop-out in a visual display or scene. Imagine that you are the designer for a hunting company designing a new camouflage outfit. How would you apply your knowledge of research in visual search to make the camouflage more efficient?
Describe a few of the camouflage problems that the designer has to worry about for a hunter in an outdoor environment.
Provide two very different ways of testing whether your newly designed hunting outfit actually camouflages the hunter sufficiently by using experimental techniques discussed in class (you can use any of the techniques discussed – be creative.)
Finally, using your knowledge and terminology of visual search, how can you explain the orange color of many hunter's outfits when walking through the woods? What are the designers trying to achieve with this strange color choice? (hint: they actually are trying to achieve two things at once – explain why and how)