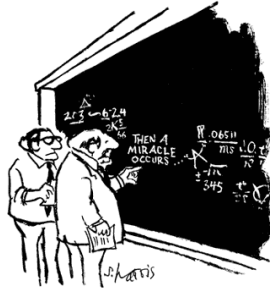


As always, the Skidmore Honor Code is in effect, which you'll acknowledge when you turn in your exam. Each multiple-choice question is worth 1 point and the value of the other questions is indicated. The exam should take about 80 minutes (the usual class time) to complete. Good luck!



"I think you should be more explicit here in step two."

Be very explicit in your essay responses!

Essay 1 (20 pts): Distinguish among several different theories of shape perception to illustrate the relative contribution of top-down and bottom-up processes.

Essay 2 (20 pts): Describe the trichromatic and opponent process theories of color vision. Evaluate the evidence available to support each theory, and their synthesis. Describe the role that additive color mixing plays in either of these theories and contrast additive and subtractive color mixing.

1. The length of a particular light wave is related to which of the following aspects of color perception?
 - a. hue
 - b. purity
 - c. brightness
 - d. color contrast
2. The aqueous humor within the eye
 - a. is thick and jelly-like.
 - b. supplies nutrients for the cornea and lens.
 - c. contains a material that is chemically similar to blood.
 - d. bends the light rays so that they focus on the retina.
3. What symptom of glaucoma permits researchers to detect this problem in its early stages?
 - a. loss of peripheral vision
 - b. overall vision loss
 - c. clouding of the lens
 - d. change in the shape of the cornea
4. The choroid layer of the eye
 - a. is located on the inside layer of the lens.
 - b. is light in color, in order to reflect the light.
 - c. provides nutrients for the retina.
 - d. is about half a centimeter in width at its thickest portion.

5. The tendency to recall more of a scene than was actually present in a picture is referred to as
 - a. illusory contour.
 - b. illusory conjunction.
 - c. boundary extension.
 - d. lateral inhibition.

6. The difficulty of linking the input from the two retinas is referred to as
 - a. the correspondence problem.
 - b. the constructivist problem.
 - c. the complementary problem.
 - d. the linkage problem.

7. Regarding depth perception, James J. Gibson (direct perception approach) argues that
 - a. the pictorial cues are of utmost importance in depth perception.
 - b. texture gradients are an important source of information about distance.
 - c. size cues are more important than motion perspective.
 - d. cues related to motion are unimportant.

8. Mach's book is important because
 - a. it contains his derivations of a number of important perceptual principles.
 - b. it illustrates a variety of Mach bands.
 - c. it illustrates the operation of higher-order processes in perception.
 - d. it shows that albedo is the sole determinant of lightness.

9. Fourier analysis
 - a. is identical to Fourier synthesis.
 - b. allows us to determine the sine waves that make up a complex wave.
 - c. allows us to combine sine waves to produce a complex wave.
 - d. allows us to analyze a sine wave into even simpler waves.

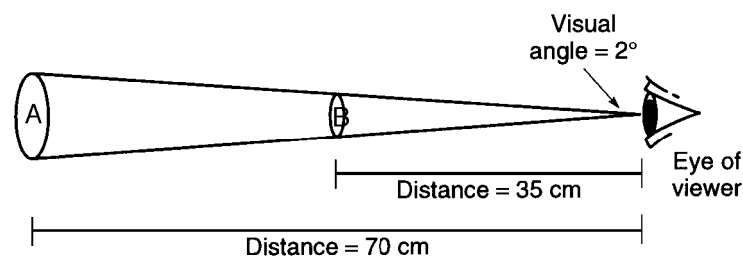
10. Lateral inhibition results in the experience of
 - a. enhanced perception of edges.
 - b. enhanced perception of color.
 - c. faster light adaptation.
 - d. poorer perception of color.

11. Suppose you watch a car drive by from left to right in front of your house. According to the corollary discharge theory,
 - a. the car appears to move because you expect it to.
 - b. the car's image falls on the same area of the moving retina, which is inconsistent with the expectation of movement from the eye-head system.
 - c. the car appears to move quickest when it is farthest away.
 - d. the movements of your eyes often confuse you as to what is truly moving, you or the car.

12. The parasol ganglion cells
 - a. are found at the beginning of the P (parvo) pathway.
 - b. are found at the beginning of the M (magno) pathway.
 - c. are predominantly connected to cones.
 - d. provide us with information about the details of a stimulus.

13. Which of the following statements about the visual system is correct?
 - a. Everything that is registered on the left side of each retina ends up on the right side of the brain.
 - b. Everything that is registered on the left side of each retina ends up on the left side of the brain.
 - c. Everything that is registered on either side of each retina ends up on the right side of the brain.
 - d. Everything that is registered on either side of each retina ends up on the left side of the brain.

14. What does *cortical magnification* mean?
- Neurons that are near each other on the retina send information to areas near each other in the visual cortex.
 - A weak stimulus will be intensified and magnified by the time it reaches the cortex.
 - Information from the fovea is over-represented with respect to the cortex.
 - The cortex is much larger than the retina.
15. Your text described in detail a classic study by Holway and Boring in which people viewed a test stimulus in different viewing conditions and adjusted a comparison circle until it seemed to match the size of the test stimulus. What did this study demonstrate?
- In the normal viewing condition, people showed very little constancy.
 - In the monocular condition, people showed overconstancy.
 - Without distance cues, people showed size constancy.
 - Without distance cues, people showed very little constancy.
16. Suppose that you are looking at a 3" black square on a white surface, two feet from your eyes. You then shift your gaze to a medium-gray, distant wall. According to Emmert's Law, you are likely to see on that wall
- a 3" black square.
 - a 3" white square.
 - a white square that is larger than 3".
 - a white square that is smaller than 3".
17. What does *retinotopic* mean?
- The retina is located at the back of the eye.
 - The retina is the primary focus of investigation.
 - Neurons that receive information from neighboring areas on the retina are found near each other.
 - The receptors on the retina are arranged so that the receptor-to-ganglion ratio is higher for rods than for cones.
18. Autokinesis is presumably due to
- small movements of a stationary car produced by action of the engine.
 - induced motion.
 - involuntary eye movements.
 - movement aftereffects.



19. Refer to the above figure to answer the following three questions:
- Because circle A is twice as large as circle B, its visual angle will be (twice as large as, the same as, half as large as) that of circle B.
 - With the same visual angle, because circle A is twice as far away as circle B, it will measure (twice as large as, the same size as, half as large as) circle B.
 - If circle A were the same size as circle B, but twice as far away, its visual angle would be (smaller than, the same as, larger than) that of circle B.

20. The moon illusion is a complex perceptual problem because
- the moon looks larger *and* closer when it is on the horizon.
 - no celestial objects are found near the moon to serve as referents.
 - we have little experience with judging the sizes or distances involved.
 - All of the above.
21. Many psychologists object to the term *retinal image* because they believe
- the image is not really registered on the retina.
 - this term implies an empiricist explanation for depth perception.
 - this term implies static perception; *retinal flow* is a more accurate term.
 - the more appropriate term would be *cortical image*, because motion information is incorporated at the level of the cortex
22. Briefly use *either* Mach's Book *or* the Alan Gilchrist study (looking into two rooms) to illustrate an important principle of lightness perception. [5 pts]

23. Optic flow fields
- are insufficient in providing enough information to detect motion.
 - become useless in detecting motion when inverted lenses are worn, because the visual system cannot overcome the changes that the lenses create.
 - disrupt the body's natural compensation processes, making it difficult to detect subtle movements.
 - are created from the combination of object and observer motion and aid in the determination of what is in motion.
24. A person with akinetopsia may perceive the world as
- shaking up and down.
 - blurry forms of color.
 - a series of still photographs.
 - 2-dimensional, unless the person is moving at least 40 km/hour.

25. In class, we saw the Ames rotating trapezoidal window. Describe the perceived experience and provide a brief explanation for why it occurs. How might this demonstration affect various theories of visual perception? [5 pts]

26. Don't you really hate it when you've prepared for an exam and the *one* question that you were ready to nail isn't asked? If so, here's your opportunity. Ask one question that hasn't been asked elsewhere on this exam and answer it briefly (and clearly). The quality of the question and the answer are both important. However, this question should produce a relatively brief response (i.e., it's not another essay question). [5 pts]