

As always, the Skidmore Honor Code is in effect, so keep your eyes foveated on your own exam. I tend to think of a point as a minute, so be sure to spend the appropriate amount of time on each question. Multiple-choice questions are worth 1 point. Note that “essay” questions do not require perfect prose, but can be responded to in outline form, with diagrams, etc. What is important, however, is completeness and clarity! (And I would really appreciate neatness.) Good luck!

Answer the following essays on the attached lined sheets of paper:

Essay 1. Compare various theories of visual perception of shape and size/distance. Be sure to contrast the computational approach, the direct perception (Gibsonian) approach, and the Gestalt approach. [20 pts]

Essay 2. Describe at least four distinct examples that illustrate that the visual system operates on relative, rather than absolute, information in arriving at our perceptions. [20 pts]

1. Cognition would be most clearly involved in which of the following explanations of perceptual experience?
 - a. The visual field is so rich with information that little or no additional information is necessary for accurate perception.
 - b. Our genetic endowment has produced a perceptual system that rapidly processes incoming information.
 - c. We learn to perceive the world by means of a strict association of specific responses to specific stimuli.
 - d. We use previously acquired knowledge to interpret incoming perceptual information.

2. A large-amplitude wavelength looks
 - a. dim.
 - b. bright.
 - c. red.
 - d. purple.

3. Point-light displays are important because
 - a. they minimize the cost of doing research on biological motion.
 - b. they allow the researcher precise control over the stimuli being presented.
 - c. without them researchers could not study biological motion.
 - d. they illustrate the minimal amount of information needed to perceive biological motion.

4. Stabilized retinal images are important because
 - a. they show that color is crucial for vision.
 - b. without them we would not be able to see movement.
 - c. they show that change is crucial for vision.
 - d. they tell us a great deal about receptive fields and lateral inhibition.

5. Suppose that researchers want to devise a method in which a shape is presented so briefly that it *cannot* be seen. They present a black disk very briefly, followed by a doughnut-shaped stimulus. The technique they are using is called
 - a. lateral inhibition.
 - b. backward masking.
 - c. Mach bands technique.
 - d. Ganzfeld technique.

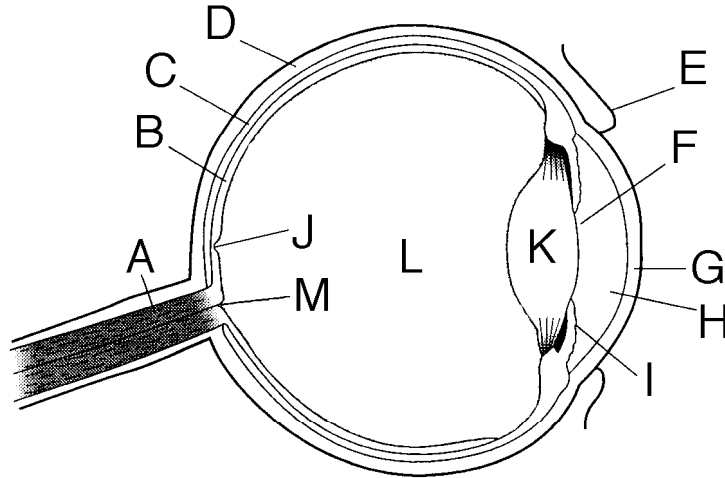
6. Suppose that you are looking at a 3" black square on a white surface, two feet from your eyes. You then shift your gaze to a medium-gray, distant wall. According to Emmert's Law, you are likely to see on that wall
 - a. a 3" black square.
 - b. a 3" white square.
 - c. a white square that is larger than 3".
 - d. a white square that is smaller than 3".

7. Pairs of lights that look exactly the same but are composed of physically different stimuli are known as
 - a. complementary colors.
 - b. metamers.
 - c. tritanopes.
 - d. dichromats.

8. Which of the following statements is correct about the term *albedo*?
 - a. The albedo stays the same for a given object, no matter what kind of lighting is used.
 - b. The albedo is greater for a black object than for a white object.
 - c. Albedo is a critical concept in Gibson's theories.
 - d. Albedo is a term that is more relevant to the proximal stimulus than the distal stimulus.

9. The most common form of color vision deficiency is
 - a. red-blue.
 - b. yellow-blue.
 - c. red-green.
 - d. blue-green.

10. The term *proximal stimulus* refers to
 - a. the object out in the world.
 - b. the fact that stimuli are not seen accurately, but only as approximations.
 - c. the stimulus in contact with a sense organ.
 - d. the stimulus that remains constant in a constancy.



11. Match the appropriate letter from the above figure to the parts of the eye indicated below: [5 pts]

_____	Sclera	_____	Iris
_____	Cornea	_____	Pupil
_____	Fovea	_____	Optic Nerve
_____	Retina	_____	Anterior Chamber
_____	Lens	_____	Choroid
_____	Optic Disc	_____	Posterior Chamber

12. One of the most common techniques used to diagnose color deficiency involves a number hidden in a pattern of different colored circles. This method is

- the pointillism test.
- the Purkinje shift.
- the successive color test.
- the Ishihara test.

13. Which of the following is the main advantage of a small pupil?

- the restriction of light permitted to enter the eye
- the greater admittance of light permitted to enter the eye
- the increased distance over which objects will be in focus
- the increased pressure that's provided to the eye

14. The change in sensitivity of the eye to a particular light intensity is called

- acuity.
- threshold of sensitivity.
- adaptation.
- accommodation.

15. If a friend of yours is able to see, but unable to identify, a picture of an object, he is most likely suffering from
 - a. prosopagnosia.
 - b. visual agnosia.
 - c. presbyopia.
 - d. glaucoma.

16. The feature integration approach emphasizes the importance of
 - a. integration.
 - b. organization.
 - c. contours.
 - d. attention.

17. Optic flow fields
 - a. are insufficient in providing enough information to detect motion.
 - b. become useless in detecting motion when inverted lenses are worn, because the visual system cannot overcome the changes that the lenses create.
 - c. disrupt the body's natural compensation processes, making it difficult to detect subtle movements.
 - d. are created from the combination of object and observer motion and aid in the determination of what is in motion.

18. The _____ is (are) responsible for carrying information about illumination differences and moderate or rapid movement.
 - a. magno pathway
 - b. parvo pathway
 - c. horizontal cells
 - d. amacrine cells

19. According to the corollary discharge theory, motion is perceived when
 - a. the sensory information is sent directly to the comparison structure.
 - b. impulses from motion-specific retinal cells stimulate the visual cortex at the same time the pursuit system is activated.
 - c. the images that cross over a person's retina move in the same direction that their eyes are moving.
 - d. the information from the eye-head system is inconsistent with the information from the image-retina system.

20. The superior colliculus is
 - a. responsible for high-level processing — storing visual associations.
 - b. the location where the majority of the ganglion cells terminate.
 - c. important in coordinating binocular vision.
 - d. important in motion detection.

21. A person with akinetopsia may perceive the world as
 - a. shaking up and down.
 - b. blurry forms of color.
 - c. a series of still photographs.
 - d. 2-dimensional, unless the person is moving at least 40 km/hour.

22. The microspectrophotometry technique has been used to demonstrate that
 - a. complementary colors are due to physiological differences.
 - b. rods and cones are located in different parts of the retina.
 - c. color deficiencies are due to genetic differences.
 - d. the three kinds of cone pigments have different absorption curves.

23. The simple cells in the visual cortex
 - a. respond vigorously to any kind of stimulation.
 - b. respond vigorously only to lines with the appropriate orientation.
 - c. respond only to moving stimuli.
 - d. respond only to moving lines that have a specified length and width.

24. The relative low rate of firing that occurs in ganglion cells when no stimulus is present is called
 - a. hyperpolarization.
 - b. maintained activity.
 - c. antagonistic firing.
 - d. depolarization.

25. Briefly illustrate the evidence used to support the opponent-process theory of color perception. [5 pts]

26. Midget bipolar cells
- connect to a single rod or small number of rods.
 - connect to many rods.
 - connect to a single cone or small number of cones.
 - connect to many cones.
27. Which of the following statements about cones and rods is true?
- More receptor cells feed information to each ganglion cell in the case of rods than is the case with cones.
 - Acuity in the cone region is greatest at night.
 - Vision is poor for objects registered on the fovea during the daylight.
 - Acuity is greater in the periphery of the eye than in the fovea.
28. Binocular rivalry exists when
- the images on corresponding retinal points cannot be fused.
 - cyclopean perception is achieved.
 - the images on corresponding retinal points can be fused.
 - we are viewing an ambiguous figure and the perception keeps changing.
29. We *cannot* see anything that reaches the blind spot of the retina because
- this is the location of the fovea.
 - this location is blocked by the lens.
 - no photoreceptors are found at this location.
 - no hypercomplex cells are found at this location.
30. The tapetum
- is found in cats and other nocturnal animals.
 - is located behind the choroid in humans.
 - aids people in seeing at night.
 - helps to overcome the loss of vision found at the blind spot.
31. Based on what you know about height cues to depth, an object would typically be perceived as closer if it were
- on the ground and toward the bottom of the visual field.
 - on the ground and toward the top of the visual field.
 - on the ground and near the horizon.
 - in the air and toward the bottom of the visual field.
32. Cataracts
- is the disease involving a clouding of the cornea.
 - is a problem that is common in children under the age of 6.
 - can be corrected by removing the lens and implanting an intraocular lens.
 - is a disease that is extremely rare in Western countries.

