

**Psych 333, Winter 2008, Instructor Boynton, Exam 2**

**Multiple Choice (38 questions, 1 point each)**

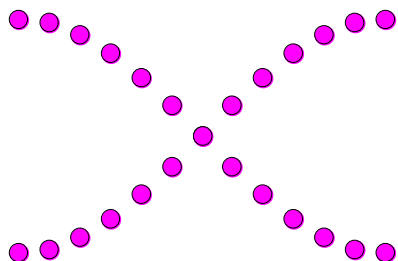
*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_\_ 1. In the image below tends to look like a white figure on a black background. This is because



- a. figures are familiar
  - b. figures are lighter in color
  - c. elements in the lower half of a scene tend to look like figure
  - d. figures are symmetric
- \_\_\_\_\_ 2. Of the following cell types and brain areas, where are the strongest effects of modulation by attention observed?
- a. photoreceptors
  - b. V1
  - c. MT
  - d. Ganglion cells
- \_\_\_\_\_ 3. Which of the following term means that “perceptions are created by combining elements of sensations?”
- a. pointillism
  - b. common fate
  - c. structuralism
  - d. Gestalt
- \_\_\_\_\_ 4. The inverse projection problem is that multiple \_\_\_\_\_ can create the same \_\_\_\_\_ on the retina.
- a. stimuli; image
  - b. orientations; average
  - c. light sources; saturation
  - d. wavelengths; color
- \_\_\_\_\_ 5. Milner and Goodale’s patient D.F. who had damage to the ventral pathway could
- a. actively match the orientation of a card, but not perceptually.
  - b. only see vertical and not horizontal orientations.
  - c. perceptually match the orientation of a card, but not actively.
  - d. not see until he was 43 years old.
- \_\_\_\_\_ 6. Binocular rivalry is a phenomenon that allows experimenters to hold constant the physical input to the retina while manipulating \_\_\_\_\_.
- a. individual differences in contrast sensitivity
  - b. what is consciously perceived
  - c. whether the stimulus is processed through the dorsal or ventral stream.
  - d. the focus of spatial attention

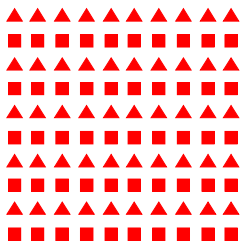
- \_\_\_ 7. Which of the following is evidence that we have neurons selective to specific properties of faces?
- The hollow face illusion
  - The face-vase illusion
  - The fact that humans have a fusiform face area
  - Face adaptation
- \_\_\_ 8. Biederman's recognition-by-components theory states that
- natural scenes tend to have more vertical and horizontal components.
  - the sum is more than its parts.
  - object recognition occurs after learning multiple viewpoints.
  - "geons" are the basic units of objects.
- \_\_\_ 9. Seeing faces in clouds is an example of
- pareidolia
  - illusory contours
  - insanity
  - structuralism
  - prosopagnosia
- \_\_\_ 10. Ungeleider and Mishkin named the ventral pathway the \_\_\_\_\_ pathway.
- how
  - who
  - where
  - when
  - what
- \_\_\_ 11. The figure below illustrates which Gestalt law?



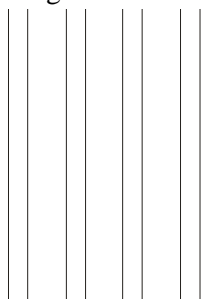
- synchrony
  - familiarity
  - good continuation
  - common region
- \_\_\_ 12. Subject G.Y. has damage to V1 in one hemisphere. When a stimulus is presented in the visual hemifield contralateral to the damaged V1, he
- is unaware of the stimulus but can guess above chance certain properties of the stimulus.
  - is unaware of the stimulus but pretends that he can see it.
  - is aware of the stimulus but is unable to identify certain properties of the stimulus.
  - can easily identify the stimulus, but is unable to point toward it.
- \_\_\_ 13. Spatial attention to a location can have all of the following effects EXCEPT:
- modulate the response of neurons with receptive fields at that location.
  - induce a perception of higher contrast at that location.
  - yield fast reaction times to stimuli presented at that location.
  - create the perception of illusory conjunctions at that location.

- \_\_\_ 14. Posner's precuing studies demonstrated that attention
- increases the contrast of a cued object.
  - increases the response time for detecting a cued object.
  - decreases the response time for detecting a cued object.
  - decreases the perceived contrast of a cued object.
- \_\_\_ 15. Training on naming 'Greeble' stimuli leads to
- increased fMRI responses in the FFA to Greeble stimuli
  - better discrimination performance on face stimuli.
  - poorer discrimination performance on face stimuli.
  - decreased fMRI responses in the FFA to Greeble stimuli
- \_\_\_ 16. When an object was presented to subject G.Y.'s visual field contralateral to the V1 damage,
- weak fMRI responses were found in area MT.
  - strong fMRI responses were found in area MT.
  - he could correctly name the object.
  - strong fMRI responses were found in area V1.
- \_\_\_ 17. The way your computer monitor can show all colors is an example of
- subtractive color mixing.
  - magic.
  - additive color mixing.
  - pointillism.
- \_\_\_ 18. A green object illuminated by a red monochromatic light will appear \_\_\_\_\_.
- green
  - blue
  - yellow
  - red
- \_\_\_ 19. Which Gestalt law best explains the phenomenon of pareidolia?
- common fate
  - proximity
  - familiarity
  - symmetry
- \_\_\_ 20. Feature-based attention directed within the receptive field of a V4 or MT neuron
- can only decrease the firing rate.
  - can either increase or decrease the firing rate.
  - does not influence the firing rate.
  - can only increase the firing rate.
- \_\_\_ 21. Suppose you have two paints. Paint A reflects red and green light. Paint B reflects green and blue light. If you mix the two paints together, the mixture will reflect \_\_\_\_\_ light.
- white
  - red, green and blue
  - green
  - purple
- \_\_\_ 22. The \_\_\_\_\_ of a light's spectral distribution affects its perceived saturation.
- location of the peak
  - spread
  - orientation
  - intensity
- \_\_\_ 23. Which of the following is **not** a psychological dimension of color
- hue
  - saturation
  - wavelength
  - brightness

\_\_\_ 24. The figure below illustrates which Gestalt law?



- a. similarity  
b. familiarity  
c. good continuation  
d. symmetry
- \_\_\_ 25. While searching for a red button that fell on a multicolored carpet, the visual system highlights the red elements of the scene. This is an example of \_\_\_\_\_ attention.
- a. feature-based  
b. change blindness  
c. bottom-up  
d. spatial
- \_\_\_ 26. Responses in \_\_\_\_\_ are NOT affected by spatial attention.
- a. the ganglion cells  
b. area V4  
c. area MT  
d. area V1
- \_\_\_ 27. A bright, saturated green color would be reflected by a spectral distribution with a \_\_\_\_\_ high peak and a \_\_\_\_\_ distribution.
- a. tall, broad  
b. short, narrow  
c. short, broad  
d. tall, narrow
- \_\_\_ 28. The "Margaret Thatcher" and "hollow face" illusions both illustrate that
- a. activation of FFA depends upon whether or not a face is detected.  
b. there is a special module devoted to face processing.  
c. famous faces are processed differently from other faces.  
d. upside-down or hollow faces are processed just like any other upside-down or inverted objects.
- \_\_\_ 29. In the figure below, we tend to see four pairs of parallel lines instead of eight separate lines. Which of the following Gestalt laws best explains this?



- a. familiarity  
b. proximity  
c. good continuity  
d. symmetry

- \_\_\_ 30. When spatial attention is directed to the right side of the visual field, the fMRI response in V1 of the \_\_\_\_\_ hemisphere \_\_\_\_\_.
- a. right; increases
  - b. damaged; deteriorates
  - c. left; increases
  - d. parietal; decreases
- \_\_\_ 31. A light flashes in your far left peripheral vision, causing you to orient your attention over there. The flash is an example of an \_\_\_\_\_ cue to attention
- a. extraneous
  - b. endogenous
  - c. ingenious
  - d. exogenous
- \_\_\_ 32. \_\_\_\_\_ cones respond best to blue light, \_\_\_\_\_ cones respond best to green light, and \_\_\_\_\_ cones respond best to red light.
- a. L, S, M
  - b. S, M, L
  - c. M, S, L
  - d. L, M, S
- \_\_\_ 33. Your inability to notice large changes between alternating images in a scene is called
- a. divided attention
  - b. change blindness
  - c. blindsight
  - d. attentional blink
- \_\_\_ 34. In addition to the pathway from the LGN to the cortex, another pathway passes from the optic nerve to the
- a. superior colliculus.
  - b. prefrontal cortex.
  - c. medula oblongata.
  - d. cerebellum.
- \_\_\_ 35. After adapting to a female face, gender-neutral faces tend to look more \_\_\_\_\_.
- a. angry
  - b. frustrated
  - c. asian
  - d. female
  - e. male

**Short Answer (3 questions, 2 points each)**

36. Describe how the rule of good continuity has been supported by recordings of brain responses in area V1.

37. Describe an example of a 'structural-description model' of object recognition.

38. Explain why shining two colored spots on the wall creates a lighter color, while mixing two colors of paint together makes a darker color.

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Answer Section**

**MULTIPLE CHOICE**

1. ANS: C
2. ANS: C
3. ANS: C
4. ANS: A
5. ANS: A
6. ANS: B
7. ANS: D
8. ANS: D
9. ANS: A
10. ANS: E
11. ANS: C
12. ANS: A
13. ANS: D
14. ANS: C
15. ANS: A
16. ANS: B
17. ANS: C
18. ANS: D
19. ANS: C
20. ANS: B
21. ANS: C
22. ANS: B
23. ANS: C
24. ANS: A
25. ANS: A
26. ANS: A
27. ANS: D
28. ANS: B
29. ANS: B
30. ANS: C
31. ANS: D
32. ANS: B
33. ANS: B
34. ANS: A
35. ANS: E



**SHORT ANSWER**

36. ANS:  
The rule of good continuity is supported by single-cell recordings in which a response to a line with the cell's preferred orientation is enhanced by collinear oriented lines placed outside the receptive field.
37. ANS:  
The main one is Biederman's 'recognition-by-components' theory in which our ability to recognize three-dimensional objects is based on recognizing three-dimensional volumes, called Geons, that can be combined to create the overall shape of an object.
38. ANS:  
Shining lights together creates an additive color mixture which contains the union of all of the wavelengths of the two lights. Mixing paints is an example of subtractive color mixing in which the combined paint reflects in intersection of the wavelengths reflected by the two paints. Additive mixtures always broaden the spectrum and add light. Subtractive mixtures always 'take away' wavelengths of light with each successive source.