

Psych 333, Winter 2008, Instructor Boynton, Exam 2

Multiple Choice (38 questions, 1 point each)

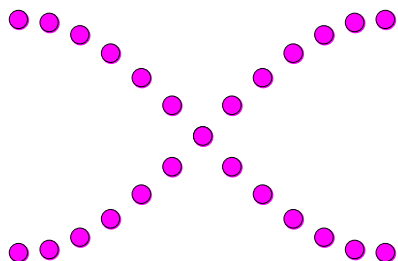
Identify the letter of the choice that best completes the statement or answers the question.

_____ 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

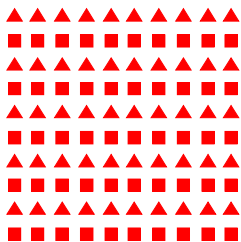
- ___ 7. Which of the following is evidence that we have neurons selective to specific properties of faces?
- The hollow face illusion
 - The face-vase illusion
 - The fact that humans have a fusiform face area
 - Face adaptation
- ___ 8. Biederman's recognition-by-components theory states that
- natural 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. Ungerleider and Mishkin named the ventral pathway the _____ pathway.
- how
 - who
 - where
 - when
 - what
- ___ 11. The figure below illustrates which Gestalt law?



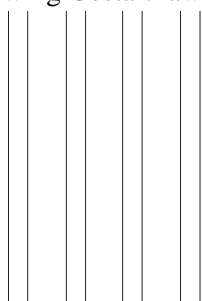
- synchrony
 - familiarity
 - good continuation
 - common region
- ___ 12. Subject G.Y. has damage to V1 in one hemisphere. When a stimulus is presented in the visual hemifield contralateral to the damaged V1, he
- is unaware of the stimulus but can guess above chance certain properties of the stimulus.
 - 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.

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