

Chapter 2

Multiple Choice

1. Which structure is not part of the visual pathway in the brain?
 - a. occipital lobe
 - b. optic chiasm
 - c. lateral geniculate nucleus
 - d. frontal lobe

ANS: d

2. Which theory predicts that pattern recognition will fail when there are minor variations in the stimulus pattern?
 - a. analysis by guessing
 - b. prototype-transformation
 - c. feature list
 - d. template theory

ANS: d

3. Identifying an image in sensory memory by drawing on past experience or knowledge is called
 - a. short-term memory
 - b. constructive retrieval
 - c. pattern recognition *
 - d. deductive reasoning

ANS: c

4. The primary function of pattern recognition is
 - a. independent from the sensory register
 - b. to add meaning to the sensory information
 - c. easily described as a simple template matching
 - d. to increase the duration of information on the sensory register

ANS: b

5. Expectations about the identity of a stimulus are associated with
- bottom-up processing
 - top-down processing
 - attribute-frequency model
 - template matching

ANS: b

6. The word superiority effect shows that
- letters are more rapidly recognized when part of a word is presented than when the letters are presented in isolation
 - words are better remembered than are nonsense syllables
 - words are recognized faster than pictures
 - language is controlled by the dominant hemisphere

ANS: a

7. A mental representation that organizes knowledge about related concepts is called a
- schema
 - prototype
 - feature detector
 - spatial frequency analyzer

ANS: a

8. Complex objects are represented mentally by combinations of simple shapes called
- features
 - structural descriptions
 - prototypes
 - geons

ANS: d

9. Holistic processing contrasts with
- top-down processing
 - automatic processing
 - analytic processing
 - modular processing

ANS: c

10. A selective inability to recognize faces is called
- prosopagnosia
 - aphasia
 - dementia
 - dyslexia

ANS: a

11. Blindsight refers to
- migrane headaches
 - vision mediated by the temporal cortex
 - vision mediated by the primary visual cortex
 - vision without conscious awareness

ANS: d

12. A stimulus may be perceived in terms of its properties but not recognized as a meaningful object in the condition called:
- agnosia
 - aphasia
 - dyslexia
 - blindsight

ANS: a

13. Complete perceptual processing relies on
- an extra sensory perception
 - just noticeable difference
 - iconic storage
 - sensory memory

ANS: d

14. You decide to go to the community swimming pool. When you arrive, you see children jumping off the high-dive, two lifeguards, a woman swimming in a business suit, and an inflatable plastic ring. Based on your knowledge of schemas, what object would receive the greatest eye exploration?
- the children jumping off the high-dive

- b. the inflatable plastic ring
- c. a woman swimming in a business suit
- d. the lifeguards

ANS: c

15. In the above question, what type of process was used on the object that received the greatest eye exploration?
- a. analytical processing
 - b. top-down processing
 - c. detailed processing
 - d. bottom-up processing

ANS: d

16. Which type of perception process slows recognition of items?
- a. analytical processing
 - b. top-down processing
 - c. detailed processing
 - d. bottom-up processing

ANS: d

17. Feature analysis proposes that the human visual cortex analyzes stimuli in terms of ____.
- a. structural descriptions
 - b. distinctive features
 - c. templates
 - d. frames

ANS: b

18. A guest lecturer is speaking to your psychology class. He is not articulating clearly, but you can still understand him. Without _____, this would not be possible.
- a. prosopagnosia
 - b. bottom-up processing
 - c. phonemes
 - e. top-down processing

ANS: d

19. Oliver Sacks wrote about a patient who mistook his wife for his hat and his foot for his shoe. This disorder illustrates
- associative agnosia
 - apperceptive agnosia
 - blindsight
 - spatial neglect

ANS: b

20. The illustration picturing a normal face, and a face with an upside-down mouth and upside-down eyes demonstrates
- brain damage affected the appearance of the distorted face
 - that faces are typically perceived holistically
 - the Gestalt principle of similarity
 - that beauty is in the eye of the beholder

ANS: b

21. A person with prosopagnosia
- cannot recognize everyday objects
 - cannot see the color red
 - cannot recognize faces
 - has poor vision

ANS: c

22. In Neisser's feature detection experiments, subjects were instructed to search for one target letter among lists of letters. Neisser found that during trials in which the target shared many features with the distracters, search time was longer. This result suggests that
- the subjects' brains compared each letter to a template stored in memory
 - humans analyze stimuli in terms of component features
 - it is easier for the brain to detect rounded letters, such as Q and O
 - it is easier for the brain to detect straight letters, such as L and T

ANS: b

23. Speech spectrograms reveal that pauses are
- frequent and generally occur between words
 - infrequent and generally occur between words
 - infrequent and generally occur in the middle of words
 - possible only at the ends of sentences

ANS: c

24. A speech spectrogram represents _____ on the y-axis.
- a. intensity
 - b. frequency
 - c. time
 - d. phonemes

ANS: b

25. Experiments with speech spectrograms show that
- a. speech is continuous between words.
 - b. speech shows invariant features.
 - c. all languages use all phonemes.
 - d. there is a one to one mapping between phonemes and segments of the speech stream.

ANS: a

26. Each segment of the speech-based acoustical signal provides identity about more than one phoneme. This is called
- a. phonemic restoration
 - b. analysis by synthesis
 - c. verbal transformation
 - d. coarticulation

ANS: d

27. When pa and ba differ continuously in voice onset time, we hear an abrupt transition; this is called
- a. phonemic restoration
 - b. verbal transformation
 - c. categorical perception
 - d. conversation implicature

ANS: c

28. Object recognition is made especially difficult when:
- a. color information that defines the features of the object are eliminated
 - b. when relational information about the vertices between features are eliminated
 - c. when the object is turned upside down

d. none of the above

ANS: b

29. Neural cells in the _____ cortex are tuned to fire when stimulated by simple lines presented in a particular orientation.
- a. temporal cortex
 - b. frontal cortex
 - c. parietal cortex
 - d. occipital cortex

ANS: d

30. _____ agnosia refers to a failure of pattern recognition caused by an inability to categorize objects a perceptual level of analysis.
- a. apperceptive
 - b. dyslexic
 - c. amnesic
 - d. associative

ANS: a

31. _____ agnosia refers to a failure of pattern recognition caused by an inability to categorize objects at a functional semantic level of analysis.
- a. apperceptive
 - b. associative
 - c. analogical
 - d. conceptually driven

ANS: b

32. Visible light is a narrow band of electromagnetic energy with wavelengths ranging from
- a. 100 to 500 nanometers
 - b. 400 to 800 nanometers
 - c. 700 to 1200 nanometers
 - d. 1100 to 1600 nanometers

ANS: b

33. The visual pathway bringing information from the retina to the primary visual cortex passes through
- a. the superior colliculus
 - b. the hippocampus
 - c. the cerebellum
 - d. the lateral geniculate nucleus

ANS: d

34. Which of the following phenomenon is found in individuals with normal perceptual functioning as opposed to requiring an injury to the brain as detected in lesion studies?
- a. spatial neglect
 - b. blindsight
 - c. change blindness
 - d. prosopagnosia

ANS: c

35. The face processing module consists of a network of brain regions in the
- a. occipital and parietal lobes
 - b. occipital and temporal lobes
 - c. temporal and frontal lobes
 - d. parietal and frontal lobes

ANS: b

36. The fusiform face area is part of the
- a. occipital lobe
 - b. parietal lobe
 - c. temporal lobe
 - d. frontal lobe

ANS: c

37. The face module allows rapid, unconscious, and automatic processing as illustrated by
- a. forming first impressions of personality traits within 100 milliseconds
 - b. increasing confidence in our personality judgments after 1 second of face exposure
 - c. perceiving faces upside down in the same way as right side up
 - d. all of the above

ANS: a

38. Between the ages of 1 and 4 months, infants can identify differences between
- a. phonemes in their native language
 - b. phonemes in any human language
 - c. upside down and right side up faces
 - d. geons and real objects

ANS: b

True/False

39. Relational information may be more critical to perception than the features themselves.

ANS: T

40. Color, texture, and other details of a perceptual experience may be more relevant than the edges of objects.

ANS: F

41. The purpose of exploring the environment is to sample features that allow us to identify scenes and objects.

ANS: T

42. Conscious perception of a meaningful object is the usual outcome of pattern recognition.

ANS: F

43. Prototype models of pattern recognition state that we recognize stimuli by comparing them to a set of templates.

ANS: F

44. The letter D would be more readily recognized in a word than by itself.

ANS: T

45. Bottom-up processing is also known as data-driven processing.

ANS: T

Short Essay

46. Explain the depth-perception illusion pictured in figure 3.1. Why does it appear that a large creature is chasing a small creature?

47. In a word perception experiment, the amount of sentence context was varied (0, 4, or 8 words). As the amount of context increased, the probability of perceptual recognition of the final target word also increased. Explain whether or not this reflects conceptually driven or data-driven pattern recognition.