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**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

Cognitive domain: Knowledge

Answer location: Visual Pathways

Question type: MC

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

Cognitive domain: Comprehension

Answer location: Feature Detectors

Question type: MC

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

Cognitive domain: Comprehension

Answer location: Pattern Recognition

Question type: MC

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

Cognitive domain: Knowledge

Answer location: Pattern Recognition

Question type: MC

5. Expectations about the identity of a stimulus are associated with
- a. bottom-up processing

- \*b. top-down processing
- c. attribute-frequency model
- d. template matching

Cognitive domain: Comprehension

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

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

Cognitive domain: Knowledge

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

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

Cognitive domain: Knowledge

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

8. Complex objects are represented mentally by combinations of simple shapes called
- a. features
  - b. structural descriptions
  - c. prototypes
  - \*d. geons

Cognitive domain: Knowledge

Answer location: Feature Detectors

Question type: MC

9. Holistic processing contrasts with
- a. top-down processing
  - b. automatic processing
  - \*c. analytic processing
  - d. modular processing

Cognitive domain: Knowledge

Answer location: Holistic Versus Analytic Processing

Question type: MC

10. A selective inability to recognize faces is called
- \*a. prosopagnosia
  - b. aphasia
  - c. dementia
  - d. dyslexia

Cognitive domain: Knowledge

Answer location: Face Perception

Question type: MC

11. Blindsight is an important phenomenon because it demonstrates that
- individuals cannot identify objects not consciously seen.
  - visual consciousness is entirely dependent on retinal processing.
  - \*c. visual consciousness is partly dependent on processing in both the retina and the occipital cortex.
  - visual consciousness is entirely dependent on a functional optic nerve.

Cognitive domain: Comprehension

Answer location: Visual Cortex

Question type: MC

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

Cognitive domain: Knowledge

Answer location: Agnosia

Question type: MC

13. 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
  - the inflatable plastic ring
  - \*c. a woman swimming in a business suit
  - d. the lifeguards

Cognitive domain: Application

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

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

Cognitive domain: Application

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

15. Which type of perception process slows recognition of items?
- analytical processing
  - top-down processing
  - c. detailed processing

\*d. bottom-up processing

Cognitive domain: Comprehension

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

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

Cognitive domain: Knowledge

Answer location: Feature Detectors

Question type: MC

17. 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
  - \*d. top-down processing

Cognitive domain: Application

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

18. Oliver Sacks wrote about a patient who mistook his wife for his hat and his foot for his shoe. This disorder illustrates
- a. associative agnosia
  - \*b. apperceptive agnosia
  - c. blindsight
  - d. spatial neglect

Cognitive domain: Application

Answer location: Agnosia

Question type: MC

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

Cognitive domain: Application

Answer location: Holistic Versus Analytic Processing

Question type: MC

20. A person with prosopagnosia
- a. cannot recognize everyday objects
  - b. cannot see the color red
  - \*c. cannot recognize faces
  - d. has poor vision

Cognitive domain: Knowledge  
Answer location: Face Perception  
Question type: MC

21. 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

Cognitive domain: Comprehension  
Answer location: Feature Detectors  
Question type: MC

22. 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

Cognitive domain: Comprehension  
Answer location: Speech Perception  
Question type: MC

23. A speech spectrogram represents \_\_\_\_\_ on the y-axis.
- intensity
  - \*frequency
  - time
  - phonemes

Cognitive domain: Knowledge  
Answer location: Speech Perception  
Question type: MC

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

Cognitive domain: Comprehension  
Answer location: Speech Perception  
Question type: MC

25. Each segment of the speech-based acoustical signal provides identity about more than one phoneme. This is called
- phonemic restoration
  - analysis by synthesis
  - verbal transformation
  - \*coarticulation

Cognitive domain: Knowledge

Answer location: Speech Perception

Question type: MC

26. 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

Cognitive domain: Comprehension

Answer location: Speech Perception

Question type: MC

27. 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 Cognitive

domain: Comprehension Answer

location: Structural Descriptions

Question type: MC

28. 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

Cognitive domain: Knowledge

Answer location: Feature Detectors

Question type: MC

29. \_\_\_\_\_ 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

Cognitive domain: Knowledge

Answer location: Agnosia

Question type: MC

30. \_\_\_\_\_ 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

Cognitive domain: Knowledge

Answer location: Agnosia

Question type: MC

31. Research by Warrington found that apperceptive agnosia

- \*a. is due to damage to the rear or posterior region of the right hemisphere.
- b. is due to damage to the rear or posterior region of the left hemisphere.
- c. is due to damage to the front or anterior region of the right hemisphere.
- d. is due to damage to the front or anterior region of the left hemisphere.

Cognitive domain: Comprehension

Answer location: Agnosia

Question type: MC

32. Which of the following statements best describes how pattern recognition works?

- a. The process of pattern recognition is handled entirely by the posterior portion of the right hemisphere.
- \*b. The perceptual analysis stage, mediated by the posterior part of the right hemisphere, precedes the semantic level of analysis which is mediated by the left hemisphere.
- c. The semantic analysis stage, mediated by the left hemisphere, precedes the perceptual level of analysis which is mediated by the posterior portion of the right hemisphere.
- d. The perceptual analysis stage, mediated by the posterior part of the right hemisphere, occurs in parallel with the semantic level of analysis which is mediated by the left hemisphere.

Cognitive domain: Analysis

Answer location: Pattern Recognition

Question type: MC

33. 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

Cognitive domain: Knowledge

Answer location: Visual Consciousness

Question type: MC

34. 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

Cognitive domain: Comprehension

Answer location: Visual Pathways

Question type: MC

35. Which of the following phenomena are 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

Cognitive domain: Analysis

Answer location: Top-Down Versus Bottom-Up Processes

Question type: MC

36. 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

Cognitive domain: Comprehension

Answer location: Face Perception

Question type: MC

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

Cognitive domain: Comprehension

Answer location: Face Perception

Question type: MC

38. 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

Cognitive domain: Application

Answer location: Face Perception

Question type: MC

39. 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

Cognitive domain: Comprehension

Answer location: Speech Perception

Question type: MC

40. One problem for the feature detection theory of pattern recognition is
- a. that the distinctive features that make up a given object are an important part of its mental representation.
  - b. that neural cells in the occipital cortex are tuned to fire when stimulated by simple



lines presented at a particular orientation, but not by complex lines.

\*c. that it fails to acknowledge the importance of the relations among features in recognition.

d. that it fails to account for the role of top-down processes in recognition.

Cognitive domain: Analysis

Answer location: Feature Detectors

Question type: MC

41. Biederman's geon theory assumes

\*a. that recognition of objects involves both the detection of features and the relations among features.

b. that the detection of features is more critical to recognition of objects than the relations among features.

c. that the relations among features is more critical to recognition of objects than the detection of features.

d. that analytic processing is more critical to recognition of objects than the detection of features.

Cognitive domain: Analysis

Answer location: Structural Descriptions

Question type: MC

### **True/False**

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

Cognitive domain: Comprehension

Answer location: Holistic Versus Analytic Processing

Question type: TF

ANS: T

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

Cognitive domain: Comprehension

Answer location: Structural Descriptions

Question type: TF

ANS: F

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

Cognitive domain: Comprehension

Answer location: Perception

Question type: TF

ANS: T

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

Cognitive domain: Comprehension

Answer location: Pattern Recognition

Question type: TF

ANS: F

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

Cognitive domain: Comprehension

Answer location: Top-Down Versus Bottom-Up Processes

Question type: TF

ANS: T

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

Cognitive domain: Knowledge

Answer location: Top-Down Versus Bottom-Up Processes

Question type: TF

ANS: T

49. Faces are perceived holistically rather than analytically.

Cognitive domain: Knowledge

Answer location: Holistic Versus Analytic Processing

Question type: TF

ANS: T

50. Coarticulation involves the articulation of multiple phonetic segments in parallel at each point in time.

Cognitive domain: Knowledge

Answer location: Speech Perception

Question type: TF

ANS: T

51. Speech pauses generally occur between words rather than within words.

Cognitive domain: Comprehension

Answer location: Speech Perception

Question type: TF

ANS: F

52. Change blindness is influenced by data-driven processes.

Cognitive domain: Comprehension

Answer location: Top-Down Versus Bottom-Up Processes

Question type: TF

ANS: F

53. Center mount brake lights on cars are difficult for humans to detect because detailed vision occurs outside the fovea.

Cognitive domain: Knowledge

Answer location: Visual Consciousness

Question type: TF

ANS: F

### **Short Essay**

54. What is a module? Provide two sources of evidence for the existence of a face-perception module.

Cognitive domain: Comprehension

Answer location: Face Perception

55. 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.

Cognitive domain: Application

Answer location: Top-Down Versus Bottom-Up Processes

56. What role do top-down and bottom-up processes play in pattern recognition? In what situations would top-down processes be likely to dominate perception? In what situations would bottom-up processes be likely to dominate perception?

Cognitive domain: Analysis

Answer location: Top-Down Versus Bottom-Up Processes

57. What do apperceptive and associative agnosia tell us about the pattern recognition process?

Cognitive domain: Analysis

Answer location: Agnosia

58. How does the arrangement of the axons of the optic nerve result in a “division of labor” in the visual field?

Cognitive domain: Comprehension

Answer location: Visual Pathways