

***Cognition, Cdn. Ed. (Ashcraft/Klein)***

**Chapter 2 The Cognitive Science Approach**

1) The Atkinson & Shiffrin model of information processing provides a useful summary of overall cognitive function. Their model is normally referred to as:

- A) The Standard Model
- B) A Connectionist Model
- C) A Process Model
- D) A Channel Capacity Model

Answer: A

Type: MC Page Ref: 43

Skill: factual

2) In response to a difficult question, the participant is likely to respond more slowly than if an easy question had been asked. In terms of the overall response times, the difficult question would yield:

- A) Response times with lower numbers
- B) Response times with higher numbers
- C) Response times would not differ
- D) Not enough information has been provided

Answer: B

Type: MC Page Ref: 37-39

Skill: conceptual

3) The sentence "I do not have to attend to what the cat will eat tomorrow" includes ten occurrences of the letter T. The Ashcraft text argues that people's difficulties in finding all of the T's reflects:

- A) Channel capacity
- B) A failure to read the textbook
- C) Top-down processing
- D) Connectionist modeling

Answer: C

Type: MC Page Ref: 51

Skill: conceptual

4) Which of the following is a common analogy used by cognitive psychologists to describe or characterize how people think?

- A) Attention
- B) Computer Analogy
- C) Context Analogy
- D) Structuralist perspective

Answer: B

Type: MC Page Ref: 41

Skill: conceptual

5) Which of the following is a central analogy of cognitive psychology?

- A) The flowchart
- B) The building blocks underlying the structure of the brain
- C) The whole is greater than the sum of the parts (the importance of context)
- D) The computer analogy

Answer: D

Type: MC Page Ref: 41

Skill: conceptual

6) Our awareness of our own cognitive systems and knowledge and insight into its workings is:

- A) Reaction time
- B) Attention
- C) Self-actualization
- D) Metacognition

Answer: D

Type: MC Page Ref: 36

Skill: factual

7) In cognition, STM is a central component of:

- A) Parallel distributed processing
- B) The process model of memory
- C) Hebb's neuropsychological theory
- D) The standard theory of memory

Answer: D

Type: MC Page Ref: 43

Skill: factual

8) Your friend tells you he participated in a computerized experiment and had to respond to stimuli flashed on the screen. He was most likely participating in a(n) \_\_\_\_\_ experiment.

- A) Information processing
- B) Introspection
- C) Conditioning
- D) Behaviourist

Answer: A

Type: MC Page Ref: 43

Skill: applied

9) A synapse is:

- A) A type of neuron
- B) A signal in the brain
- C) The junction of two neurons
- D) A type of neurotransmitter

Answer: C

Type: MC Page Ref: 55

Skill: factual

10) PDP stands for:

- A) Pretty damn powerful
- B) Processing dissociation process
- C) Parallel distributed prototyping
- D) Parallel distributed processing

Answer: D

Type: MC Page Ref: 72

Skill: factual

11) Which of the following is an assumption of a strict information-processing approach?

- A) Independent and nonoverlapping stages
- B) Automatic processing
- C) Context effects
- D) Parallel processing

Answer: A

Type: MC Page Ref: 46

Skill: conceptual

12) According to Kolb & Wishaw (1996), approximately how many cells are engaged in information processing in the typical human brain?

- A) Eighty hundred thousand
- B) Eight million
- C) Eighty million
- D) Eighty billion

Answer: D

Type: MC Page Ref: 54-55

Skill: factual

13) The act of taking in information and converting it to a usable mental form.

- A) Channel capacity
- B) Encoding
- C) Parallel processing
- D) Metacognition

Answer: B

Type: MC Page Ref: 43

Skill: factual

14) The cell that is specialized for receiving and transmitting a neural impulse.

- A) Neurotransmitter
- B) Axon
- C) Neuron
- D) Node

Answer: C

Type: MC Page Ref: 54

Skill: factual

15) Which of the following is found at the receiving end of neurons?

- A) Dendrite
- B) Myelin sheath
- C) Axon
- D) Nucleus

Answer: A

Type: MC Page Ref: 56

Skill: conceptual, factual

16) A \_\_\_\_\_ model is a hypothesis about the specific mental processes that take place when a particular task is performed.

- A) Parallel processing
- B) Process
- C) Synapse
- D) Modal

Answer: B

Type: MC Page Ref: 44

Skill: conceptual

17) The region where the axon terminals of one neuron and the dendrites of another meet.

- A) Synapse
- B) Receptor
- C) Effector
- D) Interneuron

Answer: A

Type: MC Page Ref: 55

Skill: factual

18) A timed task in which people decide if letter strings are or are not English words.

- A) Reaction time
- B) Lexical decision
- C) Mirror tracing
- D) Mental encoding

Answer: B

Type: MC Page Ref: 45

Skill: conceptual

19) A synapse is:

- A) The central portion of each neuron
- B) A cell that connects directly to muscle fibres
- C) The chemical substance that transmits messages
- D) The space between neurons

Answer: D

Type: MC Page Ref: 55

Skill: factual

20) Which of the following best describes neurons communicating with each other?

- A) A chemical process takes place at the synapse.
- B) An electrical process takes place at the synapse.
- C) The dendrite of one neuron fuses with the dendrite of another neuron.
- D) A particular neuron makes both excitatory and inhibitory synapses on two other neurons.

Answer: A

Type: MC Page Ref: 57

Skill: conceptual

21) The brain area responsible for higher -level mental processes:

- A) Type II neurons
- B) Hypothalamus
- C) Medulla
- D) Neocortex

Answer: D

Type: MC Page Ref: 58

Skill: factual

22) Situated between the frontal and parietal lobes of the brain:

- A) Lateral fissure
- B) Central fissure
- C) Cerebellum
- D) Thalamus

Answer: B

Type: MC Page Ref: 59

Skill: factual

23) What should be true about reaction times if shapes are presented to the right hemisphere and words are presented to the left hemisphere?

- A) They should be low
- B) They should be high
- C) It depends on whether the subject has a good memory
- D) It is not possible to predict reaction times, only accuracy

Answer: A

Type: MC Page Ref: 37, 60

Skill: applied

24) Information presented to the left visual field arrives first in the:

- A) Frontal lobes
- B) Left hemisphere
- C) Right hemisphere
- D) Both hemispheres simultaneously

Answer: C

Type: MC Page Ref: 60

Skill: factual

25) The part of the brain responsible for governing functions such as digestion, heartbeat, and breathing:

- A) Cerebellum
- B) Parietal lobe
- C) Corpus callosum
- D) Brainstem

Answer: D

Type: MC Page Ref: 58

Skill: factual

26) The structure known as the "gateway to the cortex":

- A) Thalamus
- B) Brainstem
- C) Hippocampus
- D) Fissure of Rolando

Answer: A

Type: MC Page Ref: 59

Skill: factual

27) The primary bridge across which messages pass between the left and right halves of the cortex:

- A) Thalamus
- B) Corpus callosum
- C) Hippocampus
- D) Hypothalamus

Answer: B

Type: MC Page Ref: 59

Skill: factual

28) The specialization of function between the left and right hemispheres:

- A) Dissociation
- B) Corpus callosum
- C) Hemispheric specialization
- D) Hemispatial neglect

Answer: C

Type: MC Page Ref: 62

Skill: factual

29) The receptive and control centers for one side of the body are in the opposite hemisphere of the brain. This is referred to as:

- A) Double dissociation
- B) Corpus callosum
- C) Hemispheric specialization
- D) Contralaterality

Answer: D

Type: MC Page Ref: 60

Skill: factual

30) Face recognition is especially dependent on:

- A) The frontal lobes
- B) The corpus callosum
- C) The right hemisphere
- D) The left hemisphere

Answer: C

Type: MC Page Ref: 63

Skill: factual

31) Sperry (1964) examined patients who had their corpus callosum severed. He was interested in investigating:

- A) Cerebral lateralization
- B) Animus
- C) Basic functions (breathing, heart rate, temperature regulation)
- D) Penfield stimulation

Answer: A

Type: MC Page Ref: 65

Skill: factual

32) Penfield is famous for his work on:

- A) Color vision
- B) Sensory-motor reflex arc
- C) Basic functions (breathing, heart rate, temperature regulation)
- D) Direct stimulation

Answer: D

Type: MC Page Ref: 66

Skill: factual

33) Functional imaging techniques are useful because:

- A) They show only the physical structure of the brain
- B) These techniques are not useful because high risks are associated with them
- C) They show the brain in action
- D) They provide precise blood flow measurements

Answer: C

Type: MC Page Ref: 67

Skill: conceptual

34) This neuroinvestigative technique provides good "when" information but not very good "where" information.

- A) ERP
- B) CT scan
- C) MRI
- D) The Penfield technique

Answer: A

Type: MC Page Ref: 70

Skill: conceptual

35) A computer-based technique for modeling complex systems. Knowledge is represented by the strength of the excitatory or inhibitory connections between massively interconnected nodes.

- A) Co-axial modeling

- B) Computer-aided modeling
- C) Connectionist modeling
- D) Associationist modeling

Answer: C

Type: MC Page Ref: 72

Skill: factual

36) Farah is participating in an experiment in which a musical passage is presented to her left ear. The melody is most likely being processed first in Farah's:

- A) Occipital lobe
- B) Left temporal lobe
- C) Left parietal lobe
- D) Right hemisphere

Answer: D

Type: MC Page Ref: 68

Skill: applied

37) The autobiographical memory of signing up for this course:

- A) Procedural
- B) Implicit
- C) Explicit
- D) Empirical

Answer: C

Type: MC Page Ref: 36

Skill: conceptual

38) How many milliseconds in a second?

- A) 1000000
- B) 10
- C) 100
- D) 1000

Answer: D

Type: MC Page Ref: 37

Skill: factual

39) Which of the following should produce the fastest reaction times in a lexical decision task?

- A) Presenting a non-word followed by another non-word
- B) Presenting a word followed by a non-related word
- C) Presenting a number followed by a non-related word
- D) Presenting a word followed by a related word

Answer: D

Type: MC Page Ref: 44

Skill: conceptual

40) A lexical decision task is:

- A) A process model
- B) A connectionist model
- C) A word decision task
- D) A priming task



Answer: C

Type: MC Page Ref: 44

Skill: factual

41) The word frequency effect illustrates:

- A) Serial-exhaustive processing of the memory set
- B) Congruency effects
- C) Common words produce larger response times
- D) Common words produce smaller response times

Answer: D

Type: MC Page Ref: 44

Skill: conceptual

42) Accounts positing independent nonoverlapping stages of processing are referred to as:

- A) Protocol models
- B) Stage models
- C) Parallel processing models
- D) Conceptually-driven processing models

Answer: B

Type: MC Page Ref: 49

Skill: factual

43) The kind of processing that is heavily reliant on information from the environment:

- A) Functionalist
- B) Data-driven
- C) Metacognitive
- D) Conceptually-driven

Answer: D

Type: MC Page Ref: 37

Skill: factual

44) We respond fastest to words that appear frequently in the English language (e.g. THE) because:

- A) They are easy to see
- B) They are short words
- C) They are easy to encode
- D) Search times through memory are shorter

Answer: D

Type: MC Page Ref: 46

Skill: conceptual

45) Henri is participating in a lexical decision task. Which of the following would facilitate his performance?

- A) The word "bread" followed by the word "leg"
- B) The word "doctor" followed by the word "car"
- C) The word "bread" followed by the word "butter"
- D) The word "city" followed by the word "butter".

Answer: C

Type: MC Page Ref: 44

Skill: applied

46) The information-processing approach is a general model of human memory and cognitive systems.

Answer: TRUE

Type: TF Page Ref: 34

47) For the majority of people, language ability is specialized in the left hemisphere.

Answer: TRUE

Type: TF Page Ref: 63

48) Information processing was the dominant approach in cognitive psychology until the mid 1970s.

Answer: TRUE

Type: TF Page Ref: 42

49) Low frequency words produce faster RTs than high frequency words.

Answer: FALSE

Type: TF Page Ref: 44-45

50) If I can name objects, but not faces; and somebody else can name objects and faces, this is sufficient to illustrate a double-dissociation.

Answer: FALSE

Type: TF Page Ref: 54

51) Sam is participating in an experiment in which electrodes are attached to his head. It is probably a PET experiment.

Answer: FALSE

Type: TF Page Ref: 67-70

52) It has been argued that observing people typing can reveal parallel processing.

Answer: TRUE

Type: TF Page Ref: 47

53) The cerebral cortex is wrinkled in order to increase the surface area.

Answer: TRUE

Type: TF Page Ref: 58

54) "Language on the left" refers to contralaterality.

Answer: FALSE

Type: TF Page Ref: 63

55) One reason cognitive psychologists moved away from the strict information-processing approach was the evidence that multiple mental processing can occur in parallel.

Answer: TRUE

Type: TF Page Ref: 47

56) Each hemisphere of the brain is a single sheet of neural tissue, the lobes are merely separated by larger folds and convolutions of the cortex.

Answer: TRUE

Type: TF Page Ref: 59

57) An advantage of computer modeling is that it forces theorists to be very explicit.

Answer: TRUE

Type: TF Page Ref: 42

58) List three different types of data sources that cognitive psychologists have used to learn about hemispheric lateralization: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

Answer: any of: LESION, DIRECT STIMULATION, ERP, fMRI, CT, PET, etc.

Type: SA Page Ref: 67-70

59) Explain the concept being referred to when someone says "language is on the left".

Answer: The concept of hemispheric specialization, which means that different brain functions tend to be localized in one or other of the hemispheres

Type: SA Page Ref: 63

60) What is one advantage of computer-based theorizing?

Answer: It forces theorists to be precise and explicit in developing their theories

Type: SA Page Ref: 42

61) What are the two main difficulties with the strict information processing approach?

Answer: Parallel processing and context effects

Type: SA Page Ref: 47-48

62) How might ERP data reveal information relevant to understanding cognitive function?

Answer: It shows how the electrical activity of the brain changes moment by moment when the subject is processing a stimulus.

Type: SA Page Ref: 70

63) "The act of taking in information and converting it to a usable mental form": \_\_\_\_\_.

Answer: ENCODING

Type: SA Page Ref: 43

64) The receptive and control centers for one side of the body are in the opposite hemisphere of the brain. This is referred to as \_\_\_\_\_.

Answer: CONTRALATERALITY

Type: SA Page Ref: 60

65) What are the two major assumptions of the strict information-processing approach?

Answer: Sequential stages of processing; independent and nonoverlapping stages

Type: SA Page Ref: 46

66) The four major lobes of the brain are: frontal, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

Answer: TEMPORAL, PARIETAL, OCCIPITAL

Type: SA Page Ref: 59

67) Draw a picture of a neuron. Label at least five of the important components.

Type: SA Page Ref: 56

68) More recent developments within cognitive psychology have contributed to the development of the newly spawned discipline of cognitive science (which can be thought of as cognitive psychology from a more interdisciplinary perspective). Describe how the contributions of both neurophysiology and computer science have helped us to understand more about "how people think."

Answer: Students should include information from various relevant sources in the chapter. The question can be made longer or shorter (and easier to grade) by stating how many contributions they should include from each discipline

Type: ES Page Ref: various

69) Explain the concepts of simple and double dissociations.

Answer: In a simple dissociation, process A (e.g., know the meaning of a concept) could be impaired while process B (e.g., be able to name the concept) remains unimpaired. No other known person shows a reciprocal pattern. In a double dissociation, one person could be impaired on process A but not on process B, while another person has the opposite pattern of impairment, that is, impaired on process B but not on process A.

Type: ES Page Ref: 54

70) The Atkinson & Shiffrin model provides a useful summary of overall cognitive function. What does a

process model add to the description (i.e., what do we gain by using a process model)?

Answer: Students should cover how the process model is a small scale model that delineates specific mental steps involved in a task. An example can be given that describes these steps

Type: ES Page Ref: 44-46

71) (i) Explain the concept of hemispheric specialization. (ii) Name two abilities for each hemisphere. (iii) What is the corpus callosum?

Answer: (i) Hemispheric specialization refers to the fact that the left and right hemispheres control some different functions (ii) any of the relevant functions (iii) The corpus callosum is a structure linking the left and right hemispheres

Type: ES Page Ref: 59, 62-64