Introduction to Cognitive Psychology: PSY 200

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Exam 1

Name _____

Purdue ID _____

Your score on this exam will count toward 17% of your final grade.

The following short answer questions are worth 10 points each. All answers should be legible and in complete sentences and may include figures or diagrams. You might lose points for extremely bad handwriting, grammar, or syntax.

(A) Describe a situation where a patient with a cut corpus callosum would demonstrate unusual behavior.

(B) Explain how a difference map is created for a brain scan, and explain why the difference map is needed to relate brain areas to cognitive behavior.

(C) Explain how the receptive field of a "simple cell" is built up from center-surround cells.

(D) Explain how the "resonance hypothesis" is related to a network of neuron activities "settling down."

The following multiple choice questions are worth 2 points each. Enter your answer on the scantron sheet. Enter only one choice for each question.

(1) Which of the following is an example of *contralateral processing*?:
(a) the left hemisphere controls the right arm.
(b) the left hemisphere controls the left leg.
(c) the fore-brain controls the back muscles.
(d) the hind-brain controls the facial muscles.

(2) Which of the following statements is true?:
(a) the left hemisphere deals with language, while right hemisphere does not.
(b) both the left and right hemispheres are equally involved in language.
(c) the right hemisphere is more involved with language than the left hemisphere.
(d) the left hemisphere is more involved with language than the right hemisphere.

(3) The primary sensory area is part of which brain lobe?:
(a) occipital.
(b) temporal.
(c) parietal.
(d) frontal.

(4) Which brain lobe tends to be involved in visual perception?:
(a) occipital.
(b) temporal.
(c) parietal.
(d) frontal.

(5) Which brain scan technique has the best *temporal resolution*?:
(a) EEG.
(b) MRI.
(c) fMRI.
(d) diffusion spectral imaging.

(6) An EEG device measures:
(a) the BOLD signal.
(b) electrical signals on the scalp.
(c) action potentials.
(d) brain activity.

(7) The colors corresponding to "brain activity" in an fMRI scan typically correspond to:
(a) action potentials.
(b) BOLD signals.
(c) differences in BOLD signals across a control and experimental condition.
(d) places where the BOLD signal is the same for both a control and experimental condition.

(8) Which of the following is *not* a misconception about brain scan techniques?:
(a) they demonstrate that cognition happens in the brain.
(b) they prove a physiological basis for cognition.
(c) they identify places in the brain involved in a cognitive task.
(d) they show how the brain performs a cognitive task.

(9) The main difference between an MRI scan and an fMRI scan is:
(a) the spatial resolution.
(b) they use different types of machines.
(c) the temporal resolution.
(d) the analysis of the data.

(10) The tongue display unit discussed in class allowed a blind person to "see" with their tongue. A brain scan of a person using the unit:
(a) suggested that this type of "seeing" uses the brain areas that non-blind people use for vision.
(b) was ineffective because it lacked temporal resolution.
(c) did not reveal anything that we did not already know.
(d) suggested that this type of "seeing" uses the brain areas involved in touch and motor control of the tongue.

(11)Which of the following is a fundamental limitation of the "mind reading" from fMRI scans that we discussed in class?:
(a) it only gets 71% correct.
(b) it performs just as well for identifying the subject's response as for the subject's mental intention.
(c) it can only identify the cognitive states it was specifically designed to handle.
(d) it does not work if the corpus callosum is cut.

(12) The "input" to a neuron uses which anatomical part?:
(a) axon.
(b) dendrites.
(c) myelin sheath.
(d) soma.

(13) At rest, the electrical difference between the inside of a neuron and the outside of a neuron is?:
(a) 10 mVolts.
(b) -70 mVolts.
(c) 20 mVolts
(d) 0 mVolts.

(14) The rising electrical potential during an action potential corresponds to the flow of:
(a) sodium into the cell membrane.
(b) potassium out of the cell membrane.
(c) neurotransmitter into the cell membrane.
(d) neurotransmitter out of the cell membrane.

(15) The arrival of an action potential at a synapse causes:
(a) neurotransmitter to be released into the synaptic cleft.
(b) receptors to grab neurotransmitter.
(c) receptors to release neurotransmitter
(d) the action potential to be converted into a purely electrical signal that "jumps" across the synaptic cleft.

(16) Patients with Tourette's syndrome have a condition whereby the brain:
(a) produces too much dopamine.
(b) produces too little dopamine.
(c) inefficiently uses its dopamine.
(d) only uses dopamine for inhibitory effects.

(17) The drug curare is a poison because it:
(a) resembles endorphin peptides.
(b) mimics serotonin.
(c) blocks acetylcholine.
(d) enhances the effects of dopamine.

(18) Which best describes the term *receptive field*?:
(a) the stimuli that increase a neuron's firing rate.
(b) the stimuli that decrease a neuron's firing rate.
(c) the stimuli that change a neuron's firing rate.
(d) the stimuli that do not influence a neuron's firing rate.

(19) What kind of stimulus would produce the strongest firing rate for a neuron with an on-center, off-surround receptive field?:
(a) a small spot of light.
(b) a spot of light that fills the on-center.
(c) a line of the correct orientation.
(d) a moving line.

(20) What kind of stimulus would produce the strongest firing rate for a neuron with a simple receptive field?:
(a) a small spot of light.
(b) a line of the correct orientation.
(c) a line of the correct orientation and position.
(d) a moving line.

(21) The neurons that directly feed into the *complex cells* have what kind of receptive field?:
(a) one-center, off-surround.
(b) wavelength-sensitivity.
(c) simple
(d) hypercomplex.

(22) We argued against the idea that a single neuron responds to your grandmother's face because:
(a) a single action potential does not do much by itself.
(b) the necessary receptive field cannot be learned.
(c) there are not enough neurons for this kind of approach.
(d) this approach would only work if there were no inhibitory neurons.

(23) The perception of "illusory contours" is most closely related to a network:
(a) with activities that settle down.
(b) having error correction capabilities.
(c) tolerating the loss of some cells.
(d) using Hebb's rule.

(24) In the neural network demonstration we discussed in class, each letter corresponded to a model:
(a) synapse.
(b) neuron.
(c) action potential.
(d) cognitive state.

(25) In the neural network demonstration we discussed in class, a model neuron receives 3 excitatory and 2 inhibitory inputs. What will happen to the neuron?:
(a) it will not change.
(b) it will become active.
(c) it will become inactive.
(d) it changes its connection strength.

(26) The neural network we demonstrated in class does not have a "master" or "controller" neuron that is necessary for the network to function. This characteristic is related to:
(a) network activities "settle down."
(b) the network has "error correction capabilities"
(c) the network can "tolerate the loss of some cells."
(d) the network uses feedback.

(27) In the neural network that we demonstrated in class, the model term *connection weight* corresponds to a:
(a) synapse.
(b) neuron.
(c) action potential.
(d) cognitive state.

(28) If two neurons are active at the same time, Hebb's rule says that they:
(a) adjust so that in the future they fire at different times.
(b) develop an excitatory connection.
(c) develop an inhibitory connection.
(d) will always be active together in the future.

(29) In the neural network demonstration we discussed in class, *learning* involves changes in:
(a) synapses.
(b) neurons.
(c) action potentials.
(d) cognitive states.

(30) The brain of an infant watching their hand move is probably applying:
(a) Hebb's rule to learn eye-hand coordination.
(b) grandmother cells to grasp objects.
(c) receptive fields to detect motion.
(d) the resonance hypothesis to create action potentials.

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Exam 2

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The following short answer questions are worth 10 points each. All answers should be legible and in complete sentences and may include figures or diagrams. You might lose points for extremely bad handwriting, grammar, or syntax.

(A) Explain how a motion gated dipole circuit produces a motion aftereffect. Briefly describe a stimulus that produces a motion aftereffect and describe the motion aftereffect.

(B) Describe the attentional blink experiment, the typical data, and the interpretation of the data in terms of information processing and processing resources.

(C) Describe the suffix effect and explain how the properties of echoic memory account for the suffix effect.

(D) Explain how the phonological loop explains the word-length effect.

The following multiple choice questions are worth 2 points each. Enter your answer on the scantron sheet. Enter only one choice for each question.

(1) In the brightness contrast illusion, which neurons possibly contribute to the percept?:
(a) a center-surround cell, with the receptive field entirely inside the middle gray square.
(b) a center-surround cell, with the excitatory part in the gray square and the inhibitory part outside the middle gray square.
(c) a Reichardt detector.
(d) a center-surround cell that only responds to gray light.

(2) What conclusion did we make from the disappearing pink circle effect?:
(a) center-surround cells do not respond to homogeneous regions.
(b) simple cells are not involved in color perception.
(c) color information spreads from edges to interiors of regions.
(d) offset of a color produces an afterimage.

(3) Which of the following choices is **not** part of the explanation of the Hermann grid illusion? Center-surround cell receptive fields on:
(a) an intersection receive inhibition from four "roads".
(b) a street receive inhibition from two "roads".
(c) an intersection do not receive inhibition.
(d) an intersection and on a street receive close to maximum excitation.

(4) If you stare at a set of concentric circles for several seconds and then look at a blank surface, the orientation gated dipole circuits would cause you to see:
(a) circles of the opposite color.
(b) rectangles.
(c) lines radiating outward.
(d) a persisting percept of the circles.

(5) The critical flicker frequency refers to how quickly a visual stimulus must turn on and off so that appears to be on all the time. For many situations it is about:
(a) 10 Hz.
(b) 50 Hz.
(c) 200 Hz.
(d) 1000 Hz.

(6) For the explanation of visual persistence provided in class, the *source* of persisting percepts was:
(a) slow responses in photoreceptors.
(b) excitatory feedback in neural networks.
(c) short-term memory.
(d) long-term memory.

(7) Visual masking makes it difficult to detect very brief stimuli because the mask:
(a) replaces items in short-term memory.
(b) triggers Reichardt motion detectors.
(c) shortens visual persistence.
(d) causes an afterimage.

(8) A given Reichardt motion detector will be sensitive to:
(a) motion in any direction at a certain position.
(b) motion at any speed at a certain position.
(c) opposite directions of motion.
(d) motion at a small set of speeds and a small set of directions at a certain position.

(9) From the perspective of "information processing", to ignore something is the same as:
(a) actively processing it.
(b) passively processing it.
(c) automaticity.
(d) not processing it.

(10) In the basketball/gorilla video, viewers often do not detect the curtain changing color because:
(a) color changes are masked by afterimages.
(b) they are processing information about the gorilla.
(c) they can only see one color at a time.
(d) iconic memory does not store "changes".

(11) In the CogLab visual search experiment, the shown image consists entirely of blue squares. Which kind of trial is this?:
(a) feature search, target present.
(b) feature search, target absent.
(c) conjunctive search, target present.
(d) conjunctive search, target absent.

(12) The data from a visual search experiment typically show that for conjunctive searches:
(a) target absent trials take longer than target present trials.
(b) target present trials take longer than target absent trials.
(c) the response time is shorter as the number of distractors increases.
(d) the response time is shorter than for feature searches.

(13) Based on the properties of the Stroop effect, which of the following would be fastest?:
(a) identifying the word name for the word "red" when it is in green ink.
(b) identifying the color of ink for the word "red" when it is in green ink.
(c) identifying the word name for the word "green" when it is in red ink.
(d) identifying the word name for the word "green" when it is in green ink..

(14) In the feature map explanation of the visual search experiment results, the target is quickly detected in a feature search because the:
(a) unique feature of the target is the only signal in the feature map.
(b) unique feature of the target is spread across multiple feature maps.
(c) features of the distractors amplify the representation of the target.
(d) features of the distractor overlap with the feature of the target.

(15) The main conclusion from the study of iconic memory in infants is that:
(a) infants forget things much faster than adults.
(b) infants can only hold one-tenth as much as adults.
(c) infants are much more susceptible to masking effects than adults.
(d) infant iconic memory seem to be rather similar to adults.

(16) Which memory system has the shortest duration?:
(a) iconic memory.
(b) echoic memory.
(c) short term memory.
(d) long term memory.

(17) The *modality effect* for an immediate serial recall memory task refers to:
(a) poor recency for visual stimuli compared to auditory stimuli.
(b) poor primacy for visual stimuli compared to auditory stimuli.
(c) better recall for middle-of-the-list items for auditory stimuli than for visual stimuli.
(d) faster responses for visual stimuli than auditory stimuli.

(18) In the "whole-report" method, subjects can typically report about:
(a) 2 letters.
(b) 4.5 letters.
(c) 1 letter from each row.
(d) all the letters.

(19) In his study of memory, Ebbinghaus used nonsense syllables because they are:
(a) familiar to subjects.
(b) easy to remember.
(c) not already in memory and have no meaning.
(d) difficult to mask.

(20) Ebbinghaus' experiment suggests the existence of a long-term memory system because:
(a) iconic memory would not work with letters.
(b) the savings forgetting curve never goes all the way to zero.
(c) short-term memory only deals with speech sounds.
(d) he found essentially perfect memory even a month after study.

(21) In the "modal model" of memory, which system would be responsible for the primacy effect in an immediate free recall memory task?:
(a) echoic memory.
(b) iconic memory.
(c) long-term memory.
(d) short-term memory.

(22) The Brown-Peterson memory experiment suggests that:
(a) memory loss is due to interference in long-term memory.
(b) memories in short-term memory fade away if they are not actively maintained.
(c) items in long-term memory must be rehearsed for them to be activated.
(d) iconic memory has a high capacity but short duration.

(23) Which of the following is **not** one of Sternberg's hypothetical searches of short term memory?:
(a) automatic processing.
(b) parallel.
(c) serial terminating.
(d) serial exhaustive.

(24) The results of Sternberg's search of memory experiment motivated which part of working memory?:
(a) central executive.
(b) visuo-spatial sketchpad.
(c) long term memory.
(d) phonological loop.

(25) The main difference between short term memory and working memory is that short term memory:
(a) has a smaller capacity than working memory.
(b) interfaces with long term memory but working memory does not.
(c) is described as a "container" of memories, while working memory is described as processing of information.
(d) has a longer duration than working memory.

(26) In Brook's study that suggested the existence of the visuo-spatial sketchpad and the phonological loop people were fastest when:
(a) both the mental task and the response used the same system.
(b) the mental task and the response used different systems.
(c) the central executive stopped the search.
(d) the task did not involve long-term memory.

(27) As children mature, their short-term memory improves. This seems to be due to improvement in which system?:
(a) echoic memory.
(b) articulatory control process.
(c) phonological store.
(d) long-term memory.

(28) People with different native languages have varying abilities to remember numbers over a short span of time ("digit span"). This seems to largely be due to differences in which system?:
(a) echoic memory.
(b) articulatory control process.
(c) phonological store.
(d) long-term memory.

(29) The *irrelevant speech effect* suggests that if you are reading text that you want to remember, you should:
(a) have the TV or radio on.
(b) only listen to background speech if it is in a foreign language.
(c) study in silence.
(d) occasionally take a break from reading to listen to speech on a different topic.

(30) Phonological similarity leads to worse memory because it produces interference in which system?:
(a) echoic memory.
(b) articulatory control process.
(c) phonological store.
(d) long-term memory.

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Exam 3

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The following short answer questions are worth 10 points each. All answers should be legible and in complete sentences and may include figures or diagrams. You might lose points for extremely bad handwriting, grammar, or syntax.

(A) Explain some of the difficulties involve in memory for eye-witness testimony and discuss why memory on this task is constructive.

(B) Describe the amnesia characteristics of patient HM. In what kind of situations was he able to demonstrate some form of memory?

(C) Briefly describe the experiment about the role of *recall practice* on memory. What study advice follows from this experiment?

(D) Describe the CogLab version of the mental rotation experiment, the typical results, and the interpretation of the results.

The following multiple choice questions are worth 2 points each. Enter your answer on the scantron sheet. Enter only one choice for each question.

(1) Generally (but not in the classroom demonstration), recall is better when subjects are asked to remember a _____ list of items than a _____ list of items:
(a) whole, partial.
(b) retroactive, proactive.
(c) shallowly processed, deeply processed.
(d) retrograde, anterograde.

(2) Which of the following would be an example of the encoding specificity principle?:
(a) deep processing is better than shallow processing.
(b) flashbulb memories are very vivid.
(c) students do better on an exam when they attend lectures.
(d) memory is constructive.

(3) Encoding specificity suggests that forgetting might be a retrieval problem because:
(a) shallow processing is not strong enough.
(b) people can have "false memories."
(c) information that was forgotten might be recalled in a different context.
(d) memories are cognitive events.

(4) Encoding specificity suggests that "hints" do not always help to jog memory because:
(a) the hint is at the wrong level of processing.
(b) of retroactive inteference.
(c) the hint masks the true memory.
(d) the hint changes the context of recall.

(5) Memory performance tends to get worse across repeated trials. This is an example of:
(a) shallow processing.
(b) practice.
(c) proactive interference.
(d) retroactive interference.

(6) In the phonological loop, the counting backwards task in the Brown-Peterson experiment is an example of:
(a) shallow processing.
(b) practice.
(c) proactive interference.
(d) retroactive interference.

(7) An explanation for the "false memory" effect, as experienced in CogLab is that people have:
(a) a change in context that makes them forget most items.
(b) proactive interference.
(c) memories of thoughts about the special lure that are mistaken to be from seeing the item.
(d) a primacy effect.

(8) Which of the following is a characteristic of a flashbulb memory?:
(a) it does not fade over time.
(b) people are convinced it is very accurate.
(c) it only captures information about the "event," not other information.
(d) it is never forgotten.

(9) Which of the following is a characteristic of a flashbulb memory?:
(a) it feels very vivid compared to normal memories.
(b) it automatically produces deep processing.
(c) it is a kind of retrograde amnesia.
(d) it is an example of encoding specificity.

(10) Penfield (1959) found that when stimulating certain areas of the brain, patients:
(a) re-experienced a memory of their past.
(b) experienced memories from a past life.
(c) forgot what they were going to say.
(d) reported having a vivid memory that they had forgotten.

(11) A risk for patients undergoing role-playing in therapy is that the therapist might accidentally:
(a) trigger suppressed memories.
(b) cause retrograde amnesia.
(c) "implant" a false memory.
(d) access long term memory.

(12) If after an accident you cannot remember things that you learned *before* the accident, then you have:
(a) proactive interference.
(b) retroactive interference.
(c) anterograde amnesia.
(d) retrograde amnesia.

(13) If after an accident you cannot remember things that happened *after* the accident, then you have:
(a) proactive interference.
(b) retroactive interference.
(c) anterograde amnesia.
(d) retrograde amnesia.

(14) Which of the following memories would be an example of information in the nondeclarative (implicit) memory system of LTM?:
(a) knowing the name of the instructor of this class.
(b) knowing when you learned the name of the instructor of this class.
(c) recognizing the instructor's face.
(d) knowing how to tie a shoelace.

(15) Most people do not have memories of things that happened to them when they were younger than 4 years old. This is called:
(a) infantile amnesia.
(b) infantile suppression.
(c) release from pre-language learning.
(d) iconic memory.

(16) Memory researchers are skeptical that memory "repression" is a real thing because it is difficult to:
(a) show that a patient could not remember something.
(b) show that treatment recovered a repressed memory.
(c) verify that the recovered memory was "real."
(d) all of the above.

(17) In the levels of processing effect, the best memory occurs:
(a) for deep processing.
(b) for shallow processing.
(c) when the level of processing is similar at the time of test as at the time of study.
(d) when processing reduces the build up of proactive interference.

(18) Our final exam is not in the same room as the lecture, the properties of encoding specificity suggest that you should:
(a) not attend lectures.
(b) study only in your dorm room or apartment.
(c) study in diverse environments.
(d) use methods that promote auditory learning rather than visual learning.

(19) Which of the following is a valid statement about learning styles?:
(a) instructors should adjust their teaching method to a student's learning style.
(b) students do not actually have preferred learning styles.
(c) all methods work equally well for all learning styles.
(d) there seems to be no reason to adjust the teaching method to a student's preferred learning style.

(20) SF increased his memory span to 81 digits. He did this largely by:
(a) increasing his rehearsal rate in the phonological loop.
(b) increasing the capacity of his phonological store.
(c) increasing the capacity of his long term memory.
(d) using his long term memory.

(21) In the "method of loci" technique for memorization, you recall items by:
(a) repeating a mental walk and using visualized bizarre imagery to remind you of the items.
(b) repeating a poem and using visualized bizarre imagery to remind you of the items.
(c) thinking back to the context of study.
(d) counting backwards and using the numbers to jog your memory.

(22) The current conclusion from "brain training" techniques is that they:
(a) effectively exercise your brain.
(b) give children a "head-start" in school.
(c) generalize to other tasks (e.g., fluid intelligence).
(d) do not generalize to other tasks (e.g., fluid intelligence).

(23) Sleep seems to be important for:
(a) recalling explicit memories.
(b) recalling implicit memories.
(c) recalling memories in a way that enables comparisons.
(d) using the method of loci.

(24) The main problem with the definition approach to concepts is that:
(a) it never works.
(b) different people use different definitions.
(c) it does not reflect how people seem to actually think.
(d) definitions cannot exist for *ad hoc* concepts.

(25) In the exemplar theory of concepts, a concept is:
(a) the result of processing all remembered examples of a concept.
(b) a single memory.
(c) ambiguous definitions.
(d) an average of different examples.

(26) A proposition is:
(a) the simplest possible concept.
(b) the simplest statement that can be judged as true or false.
(c) a unification of prototype and exemplar theories.
(d) a prototype.

(27) Ratcliff & McKoon (1978) found evidence that subjects:
(a) use exemplar theory.
(b) do not use propositions.
(c) use propositions
(d) represent concepts with prototypes.

(28) A problem with the prototype theory of concepts is that:
(a) different people have different prototypes.
(b) some prototypes are images.
(c) some concepts seem to be generated "on the spot."
(d) prototypes cannot be part of propositions.

(29) Trying to rotate a mental image and then reinterpret it is difficult, which suggests that mental images:
(a) are almost identical to real images.
(b) definitely have a perceptual aspect.
(c) almost surely include propositional information.
(d) are represented in the occipital lobe of the brain.

(30) Mental images would most likely utilize which part of working memory?:
(a) echoic memory.
(b) phonological store.
(c) recency effect.
(d) visuospatial sketchpad.

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Exam 4

Name _____

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Your score on this exam will count toward 17% of your final grade.

☐ Optional: You can have your score on this exam replace part of your score on exam 1. If you check the box, your current exam 1 score will be replaced by the average of your old exam 1 score and the score you earn on this exam. Thus, if you think you have done better on this exam than on exam 1, you should check this box. If you think you have done worse on this exam than on exam 1, you should leave the box unchecked.

The following short answer questions are worth 10 points each. All answers should be legible and in complete sentences and may include figures or diagrams. You might lose points for extremely bad handwriting, grammar, or syntax.

(A) Explain how the properties of pidgins and creoles indicate that children *re-invent* language rather than learn it.

(B) Describe the CogLab word superiority experiment and explain the significance of the typical results.

(C) Describe the three variables that define consonants.

(D) Explain how distributed processing in the brain makes it rather pointless to look for the place or moment of conscious experience.

The following multiple choice questions are worth 2 points each. Enter your answer on the scantron sheet. Enter only one choice for each question.

(1) Which statement is true in the broadest sense?:
(a) language is an instinct and unaffected by culture.
(b) language is entirely created by culture.
(c) the general ability to have language is instinctual, the specific language you use is influenced by culture.
(d) the specific language you use is instinctual.

(2) We can be confident that children do not learn language *only* by mimicking speakers around them because:
(a) children make mistakes.
(b) children follow most of the rules most of the time.
(c) children generate mistakes that they would never hear speakers make.
(d) adults make mistakes too.

(3) Which of the following is the *correct* form of English?
(a) Standard American English.
(b) British English.
(c) African American Vernacular English.
(d) none of the above.

(4) Grammar refers to:
(a) symbols.
(b) words.
(c) the order of words.
(d) meaning.

(5) A phrase must be grammatically correct to be:
(a) meaningful.
(b) understood.
(c) spoken.
(d) part of language.

(6) A phrase tree is a visual description of:
(a) a re-write rule.
(b) non-sense sentences.
(c) creole.
(d) a long-term dependency.

(7) When we learn a new word, we are usually able to immediately use it in lots of different ways. This ability is most closely related to:
(a) meaning.
(b) phrase trees.
(c) ambiguity.
(d) long-term dependency.

(8) The term *language universal* refers to:
(a) all languages using the same grammar.
(b) relationships across different languages about characteristics of grammars.
(c) the stages of language development going from creole to pidgen to language.
(d) dealing with long-term dependencies.

(9) The *wug* test demonstrates that children:
(a) know some rules for words.
(b) recognize that words are arbitrarily related to concepts.
(c) cannot learn new words.
(d) do not know about suffixes.

(10) The limited English morphology of verbs means that English speakers:
(a) use a phrase to communicate what other languages would say with a suffix.
(b) cannot think about some concepts.
(c) have to generate lots of new words.
(d) have a smaller lexicon.

(11) Which of the following is *not* a morpheme?:
(a) the word *chair*.
(b) the suffix *-ing*.
(c) the prefix *re-*.
(d) the syllable *twi*.

(12) A word without any suffixes or prefixes is called a:
(a) head.
(b) core.
(c) root.
(d) morpheme.

(13) That sentences can be ambiguous lead us to conclude that thoughts:
(a) must involve speaking to yourself.
(b) need a parser.
(c) cannot *only* involve speaking to yourself.
(d) have long-term dependencies.

(14) A key difficulty in parsing a sentence like *The plastic pencil marks...* is that:
(a) the phrase is not grammatical.
(b) the spelling does not match the pronunciation.
(c) many of the words are ambiguous.
(d) concepts are not definitions.

(15) In some cases, proper language is not enough to insure communication. This is because:
(a) even grammatically correct sentences can be ambiguous.
(b) sentences also require meaning.
(c) some words are headless.
(d) the parser is not the same as the language generator.

(16) In some cases, proper language is not enough to insure communication. This is because:
(a) some sentences are not created by re-write rules.
(b) long-term dependencies cannot be parsed.
(c) some grammatically correct sentences cannot be parsed.
(d) some words do not have a root.

(17) You can "hear" a person smile because smiling:
(a) causes co-articulation.
(b) interferes with parsing.
(c) changes the frequencies contributing to certain sounds of speech.
(d) produces a specific phoneme.

(18) Because of co-articulation, when a speaker quickly says something at 25 phonemes per second, she actually:
(a) says close to 30 phonemes.
(b) says less than 20 sounds.
(c) generates ambiguous words.
(d) uses a schema to remove ambiguities.

(19) Because of co-articulation, when a speaker intends to say something at 25 phonemes per second, the *listener* typically:
(a) interprets the sounds as having 25 phonemes.
(b) does not understand what was said.
(c) cannot distinguish some consonants.
(d) cannot parse the sentence.

(20) Computer speech sounds funny to us because the computer-made sounds:
(a) are not emotive.
(b) are not properly co-articulated.
(c) do not take into account long-term dependencies.
(d) lack schemas.

(21) A word pair like *hocus-pocus* or *namby-pamby* follows what rule about the first word compared to the second word?:
(a) the first word has a leading consonant that comes earlier in the alphabet.
(b) the first word was acquired at a younger age.
(c) the first word has a leading consonant that impedes airflow least.
(d) the first word is harder to say.

(22) An advantage of the written Korean hangul compared to written English letters is that:
(a) the shapes indicate how to pronounce the speech.
(b) there are fewer symbols.
(c) the shapes are pictures that describe the concept of the word.
(d) the shapes remove the need for co-articulation.

(23) At birth, infants:
(a) can discriminate essentially all possible phonemes.
(b) know some basic properties of grammar.
(c) could speak if they had enough muscle control.
(d) follow most of the rules most of the time.

(24) Learning a second language is easiest at which age?:
(a) kindergarden.
(b) elementary school.
(c) high school.
(d) after college.

(25) English spelling often deviates from pronunciation. To a large extent this deviation reflects:
(a) long-term dependencies.
(b) word ambiguity.
(c) co-articulation.
(d) re-write rules.

(26) How do we know that children's language mistakes correspond to difficult parts of language?:
(a) chimps also cannot learn these parts of language.
(b) they tend to be learned late in life.
(c) Broca's aphasics show the same kind of mistakes.
(d) adults show the same kind of mistakes.

(27) A person with anomia:
(a) cannot form grammatical sentences.
(b) has trouble coming up with words.
(c) shows fluid or empty speech.
(d) cannot parse sentences.

(28) The main conclusion of studies on chimp language skills was that chimps cannot:
(a) learn language.
(b) learn words.
(c) communicate with humans.
(d) understand any spoken phrases.

(29) A problem with the Turing test for consciousness is that:
(a) the mind-body problem is not real.
(b) some things that are considered to be conscious do not pass the test.
(c) there may be no *place* in the brain where something becomes conscious.
(d) modern computers can pass the test but are not conscious.

(30) I bought a training collar for my dog that gives a low (I hope) shock. My concern about the feeling of shock is related to:
(a) qualia.
(b) the Turing test.
(c) dualism.
(d) distributed processing.

Introduction to Cognitive Psychology: PSY 200

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Final Exam

Name _____

Purdue ID _____

Your score on this exam will count toward 17% of your final grade.

☐ Optional: You can have your score on this exam replace part of your score on exam 2. If you check the box, your current exam 2 score will be replaced by the average of your old exam 2 score and the score you earn on this exam. Thus, if you think you have done better on this exam than on exam 2, you should check this box. If you think you have done worse on this exam than on exam 2, you should leave the box unchecked.

The following short answer questions are worth 10 points each. All answers should be legible and in complete sentences and may include figures or diagrams. You might lose points for extremely bad handwriting, grammar, or syntax.

(A) Explain why inhibitory effects are necessary in the brain. You could discuss epilepsy, receptive fields, or neural networks.

(B) Explain why no plural form feels appropriate for the word *walkman*.

(C) What are the conditions where people are risk seeking or risk averse when making decisions? Explain what these terms mean.

(D) Pick any topic from the course and explain how it is useful in other aspects of your life. (To get full credit, you need to properly describe the topic, and you need to make a sensible argument about how it applies to other parts of your life.)

The following multiple choice questions are worth 2 points each. Enter your answer on the scantron sheet. Enter only one choice for each question.

(1) The mass of neural fibers that connects the left and right hemispheres of the brain is called the:
(a) contralateral path.
(b) corpus callosum.
(c) cortex.
(d) mid-brain.

(2) Which type of brain scan would be able to track the time course of brain processing related to the lexical decision task?:
(a) EEG.
(b) fMRI.
(c) BOLD.
(d) temporal BOLD.

(3) Which of the following part of a neuron receives signals from other neurons?
(a) axon.
(b) dendrite.
(c) myelin.
(d) soma.

(4) The drug Haldol treats Tourette's syndrome by:
(a) enhancing production of dopamine.
(b) reducing production of dopamine.
(c) blocking dopamine.
(d) enhancing re-uptake of dopamine.

(5) A spot of light at a certain location in the visual field seems to inhibit a neuron. Is that location part of the neuron's receptive field?:
(a) yes.
(b) no.
(c) yes for simple cells, but no for complex cells.
(d) only in monkeys, not in humans.

(6) A neural network can create illusory contours. This is most closely related to a network's ability to:
(a) learn.
(b) tolerate the loss of some cells.
(c) settle down.
(d) correct errors.

(7) In a neural network, learning corresponds to:
(a) increasing the number of action potentials.
(b) increasing the magnitude of an action potential.
(c) increasing the strength of a connection weight.
(d) changing a connection weight.

(8) Neurons with which kind of receptive field seem to be responsible for the brightness contrast illusion?:
(a) center-surround cells.
(b) simple cells.
(c) complex cells.
(d) grandmother cells.

(9) A Reichardt detector is sensitive to:
(a) afterimages.
(b) flicker.
(c) motion.
(d) a small spot of light.

(10) In the CogLab visual search experiment, the behavioral measure is the:
(a) size of the target.
(b) number of distractors.
(c) difference between the target and distractor colors.
(d) reaction time.

(11) The absence of a recency effect for an immediate serial recall task with visual stimuli is mostly related to the:
(a) small capacity of iconic memory.
(b) small capacity of echoic memory.
(c) short duration of iconic memory.
(d) short duration of echoic memory.

(12) Little Ceaser's used to have a memory game like Simon. It is difficult to win a pizza with such a game because the required memory ability is beyond the:
(a) capacity of short-term memory.
(b) duration of short-term memory.
(c) capacity of long-term memory.
(d) duration of long-term memory.

(13) In the Sternberg memory search experiment, a hypothetical serial search produces reaction time data that:
(a) increases with set size.
(b) does not change with varying set size.
(c) is faster for target present than for target absent searches.
(d) depends on whether or not the items are words.

(14) The phonological loop explains the word-length effect by hypothesizing that:
(a) short words stay longer in the phonological store.
(b) short words are rehearsed faster.
(c) long words stay longer in the phonological store.
(d) long words are rehearsed faster.

(15) Best memory recall occurs when the conditions at the time of study and test are similar. Which of the following corresponds to "conditions"?:
(a) cues.
(b) physical environment.
(c) mood.
(d) all of the above.

(16) Memory performance tends to get worse across repeated trials. This is an example of:
(a) the modality effect.
(b) masking.
(c) proactive interference.
(d) retroactive interference.

(17) "Flashbulb" memories:
(a) only seem to be vivid.
(b) occur when you concentrate really hard.
(c) only seem to be really accurate.
(d) are actually weaker than regular memories.

(18) Infantile amnesia seems to be related to:
(a) retrograde amnesia.
(b) repression.
(c) encoding specificity.
(d) anterograde amnesia.

(19) A judgment of learning tends to be most accurate if it is made:
(a) while studying.
(b) right after studying.
(c) following a delay after studying.
(d) while testing yourself.

(20) Subject SF increased his memory span to 81 digits by:
(a) improving his rehearsal rate.
(b) increasing the capacity of the phonological store.
(c) using the visuo-spatial sketchpad.
(d) using long-term memory.

(21) Which approach to concepts best agrees with how people seem to think?:
(a) ad hoc.
(b) definitions.
(c) exemplar theory.
(d) prototype theory.

(22) The data from the CogLab mental rotation experiment suggests that mental images:
(a) are not like real images.
(b) are similar to real images.
(c) contain propostions.
(d) cannot be rotated upside down.

(23) Language grammar is most closely related to:
(a) morphemes.
(b) phonemes.
(c) re-write rules.
(d) pidgins.

(24) The two basic problems of parsing are:
(a) word order and multiple meanings.
(b) adjectives and prepositional phrases.
(c) nonsense sentences and long-term dependencies.
(d) grammar and symbols.

(25) What kind of information is *not* in the mental lexicon?:
(a) word meaning.
(b) word part of speech.
(c) re-write rules.
(d) exceptions to plural forms of nouns.

(26) The Turing test is a test for:
(a) long-term memory.
(b) intelligence.
(c) problem solving.
(d) grammar.

(27) When choosing between two options, loss aversion causes people to pick the choice that:
(a) is best overall.
(b) maximizes the perceived gains.
(c) seems best relative to your current situation.
(d) has the least loss, relative to your current situation.

(28) Retailers will sometimes display items that no one wants to buy. They do this because:
(a) it sets up a risky choice.
(b) it taps into problem solving schemas.
(c) it sets up a favorable comparison to a product that they make money on.
(d) more choices are always better.

(29) A key difference between expert and novice problem solvers is:
(a) intelligence.
(b) practice.
(c) effort.
(d) problem solving schemas.

(30) Difficulty identifying a novel use for a tool is called:
(a) an ineffective set.
(b) lack of tool insight.
(c) functional fixedness.
(d) expertise.