Introduction to Cognitive Psychology: PSY 200

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Exam 1

Name ____________________________

Your score on this exam will count toward 16% 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 will lose points for extremely bad grammar or syntax.

(A) Briefly describe the Hermann grid illusion. Explain how the behavior of center-surround cells is related to the illusion. You only need to discuss one form of the Hermann grid illusion (e.g., white on black).
(B) Suppose a right-handed patient with a severed corpus callosum participated in the CogLab brain asymmetry experiment. What pattern of data would you expect? You do not need to describe the entire experiment, but do describe enough to show that you understand what the data refer to.

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

(1) The occipital lobe of your brain is mostly involved in:
   (a) motor planning.
   (b) visual perception.
   (c) hearing.
   (d) regulation of hormones.

(2) In the primary sensory area neurons are sensitive to touch across the body. Which of the following choices is not a property of this area?:
   (a) nearby places on the body are generally mapped to nearby brain regions.
   (b) sensitivity of touch is related to the amount of brain area.
   (c) the representation of the body surface is incomplete.
   (d) it is one brain region that does not have contralateral processing.

(3) Which hemisphere has more sophisticated language capabilities? :
   (a) left hemisphere.
   (b) right hemisphere.
   (c) front hemisphere.
   (d) back hemisphere.
(4) The corpus callosum is involved in:
   (a) keeping information separate in the two hemispheres.
   (b) moving information from the back of the brain to the front.
   (c) sharing information between the two hemispheres.
   (d) connecting the hind brain with the forebrain.

(5) The direct measurement of an EEG brain scan is:
   (a) oxygen levels in the brain.
   (b) sources of electrical signals in the brain.
   (c) electrical signals on the scalp.
   (d) protons in a magnetic field.

(6) Which brain scanning technique generally has the worst spatial resolution?:
   (a) EEG.
   (b) MRI.
   (c) fMRI.
   (d) they are all the same with regard to temporal resolution.

(7) The main problem with fMRI studies that claim to demonstrate a physiological basis to psychological phenomenon is that:
   (a) usually the statistics are not done correctly.
   (b) the spatial resolution is not good enough to show which brain areas are truly involved.
   (c) we already knew there was a physiological basis to every psychological phenomenon.
   (d) such studies can only show correlation not causation.

(8) In a typical color picture produced by an fMRI investigation, the colored regions indicate places in the brain that:
   (a) were active in the scanner.
   (b) were had higher blood flow.
   (c) had different blood flow in an experimental vs. a control condition.
   (d) were responsible for the cognitive behavior.

(9) The fMRI related term “BOLD” is an acronym for:
   (a) Blood Oxygen Level Dependent.
   (b) Basic Oxygen Level Device.
   (c) Binary Oxygen Light Difference.
   (d) Broadman Occipital Lobe Development.

(10) The main advantage of fMRI compared to MRI is that it:
    (a) has better temporal resolution.
    (b) has better spatial resolution.
    (c) can identify active areas of the brain.
    (d) is non-invasive.

(11) fMRI studies of a tongue display unit (TDU) can reveal:
    (a) how taste is converted to shape.
    (b) which brain areas are involved in using a TDU.
    (c) whether the resolution of the TDU is good enough for blind people to read text.
    (d) whether what is “seen” through the TDU is equivalent to what is seen by sighted people.
(12) Which approach is the best way to relate brain behavior to cognitive behavior with fMRI?
(a) see which brain areas are active while subjects do a cognitive task.
(b) see if a hypothesized brain area is active while subjects do a cognitive task.
(c) observe whether changes in brain activity correspond systematically with changes in cognitive behavior.
(d) run a $t$ test to insure the results are significantly different.

(13) In the fMRI mind reading experiment, the difference between thinking about addition and thinking about subtraction is based on fMRI signals at the moment subjects:
(a) select which task to do.
(b) add or subtract numbers.
(c) report their solution.
(d) tell the experimenter.

(14) Which of the following is generally not a problem for fMRI brain scans?:
(a) it is difficult to compare results across subjects.
(b) responses from brain areas sometimes blur across a fissure.
(c) some cognitive events are too fast for the scan to track.
(d) it is unsafe to have multiple fMRI scans.

(15) Which part of a neuron is mostly involved in sending signals to other neurons (or motor systems)?:
(a) axon.
(b) dendrites.
(c) myelin sheath.
(d) soma.

(16) The myelin sheath around parts of a neuron functions:
(a) to exchange sodium and potassium across cell membrane.
(b) to generate neurotransmitter.
(c) to protect the neuron from enzymes.
(d) as a kind of insulator to promote the transmission of action potentials.

(17) At “rest” a neuron has a -70 mV potential between the inside and outside of the neuron. This electrical potential is mostly the result of differences in the:
(a) amount of neurotransmitter inside and outside the cell.
(b) electrical signals in the myelin sheath.
(c) concentration of sodium and potassium ions inside and outside the cell.
(d) number of excitatory and inhibitory inputs to the cell.

(18) The falling part of the electrical signal of an action potential is mostly caused by the rush of:
(a) potassium ions into the cell.
(b) potassium ions out of the cell.
(c) sodium ions into the cell.
(d) sodium ions out of the cell.
(19) When an action potential arrives at a synapse, it causes:
(a) the receptors to grab neurotransmitter.
(b) neurotransmitter to be released into the synaptic cleft.
(c) the production of neurotransmitter.
(d) binding of neurotransmitters to receptors.

(20) If one neuron has an action potential that sends a signal to another neuron so that the receiving neuron is less likely to have an action potential itself, then the signal is said to be:
(a) active.
(b) excitatory.
(c) inhibitory.
(d) reactive.

(21) The drug L-DOPA treats Parkinson’s disease by:
(a) increasing the production of dopamine.
(b) replacing serotonin.
(c) blocking dopamine.
(d) blocking serotonin.

(22) Curare is a poison because it:
(a) enhances the effects of endorphin peptides.
(b) blocks serotonin.
(c) increases the production of serotonin.
(d) blocks acetylcholine

(23) An on-center, off-surround cell has a receptive field that makes the cell respond best to:
(a) small spots of light.
(b) long, curvy lines.
(c) simple geometric shapes.
(d) bars of the right orientation and size.

(24) Which is the best definition of the term receptive field? The set of:
(a) neurons that excite a cell.
(b) inputs that excite a cell.
(c) stimuli that change the cell’s firing rate.
(d) stimuli that increase the cell’s firing rate.

(25) Which type of cell has a receptive field with the most tolerance to shifts in the placement of an oriented bar?
(a) photoreceptor.
(b) on-center, off-surround cell.
(c) simple cell.
(d) complex cell.

(26) The responses of simple cells directly feed into which kind of neuron?:
(a) complex cells.
(b) grandmother cells.
(c) hypercomplex cells.
(d) simple cells.
(27) With the neural network demonstration in class, we noted that the network can “tolerate the loss of some cells.” This means that
(a) the network functions properly as long as you do not kill the “grandmother” cell.
(b) given noisy input, the network will converge to a learned pattern.
(c) the network continues to function even when some neurons stop working.
(d) the network keeps backup copies of each cell to replace missing cells.

(28) The blind spot is:
(a) a region on the retina of the eye where there are no light receptors.
(b) the area behind the head that is out of sight.
(c) very different across people.
(d) impossible to detect.

(29) The cell “activity” in the neural network demonstration we had in class correspond most closely to which neurophysiological term?:
(a) firing rate.
(b) synaptic strength.
(c) dendrites.
(d) inhibition

(30) Brightness percepts seem to be based on local contrast, this is because:
(a) center-surround cells respond best to spots.
(b) center-surround cells do not respond to homogeneous light areas.
(c) the eye is like a camera.
(d) there are no grandmother cells.

(31) In the network we discussed in class, presentation of NEAK lead the network to a stable pattern of NEAT. This was an example of:
(a) cell update.
(b) error correction.
(c) toleration of the loss of some cells.
(d) a grandmother cell.

(32) Hebb’s rule for neural learning suggests that when two cells are both active at the same time, they will:
(a) develop an excitatory connection.
(b) develop an inhibitory connection.
(c) change their activities.
(d) activate a third “master” cell.

(33) The disappearing pink circle effect demonstrates that visual perception:
(a) is not about recording the intensity of light in a visual scene.
(b) involves some kind of filling-in process.
(c) is not fully explained by the responses of center-surround cells.
(d) all of these.
(34) In the brightness contrast illusion, two equal gray patches look to have different brightnesses depending on whether they are on a dark or a bright background. Center-surround neurons with receptive fields at the middle of these patches:
  (a) respond in a way that mimics the brightness percept.
  (b) only respond like the percept after activity has “settled down.”
  (c) respond the same.
  (d) respond in a way that represents the background.

(35) After viewing a windmill pattern of radial lines and then viewing a blank surface, one often sees:
  (a) a vertical bar grating.
  (b) a horizontal bar grating.
  (c) circles.
  (d) squares.

(36) The idea that cognitive events correspond to stable states of activities in a neural network is called the:
  (a) modularity hypothesis.
  (b) Hebb rule.
  (c) resonance hypothesis.
  (d) trajectory modulation theory.

(37) The information about which cells in a neural network should fire simultaneously is largely encoded in the network’s:
  (a) firing rate.
  (b) connection weights.
  (c) update process.
  (d) illusory contour.

(38) The perceived illusory contour seen in front of a set of four pac man figures is most closely related to which property of a neural network:
  (a) tolerates the loss of some cells.
  (b) error correction capabilities.
  (c) network activities do settle down.
  (d) Hebb’s rule.

(39) Which of the following is not a lobe of cortex?:
  (a) thalamus
  (b) occipital.
  (c) parietal.
  (d) frontal.

(40) Neurotransmitters and receptors are matched based on:
  (a) density
  (b) frequency.
  (c) electrical polarity.
  (d) shape.
(A) Describe Sternberg’s experiment on the search of short term memory (it is enough to describe the CogLab version of the experiment). Describe the pattern of data that is typically found. What do the findings tell us about the mechanisms for searching short term memory?
(B) Describe the suffix effect and explain how it is related to the properties of echoic memory.

(1) As a visual stimulus increases in intensity, the persistence of its percept:
   (a) remains constant.
   (b) decreases.
   (c) increases.
   (d) is smaller than the critical flicker frequency.

(2) On old style computer monitors, about one third of the screen is dark at any given time. Most people do not notice this because:
   (a) Reichardt detectors do not respond to the motion.
   (b) the percept persists.
   (c) people remember what the screen looked like.
   (d) the refresh rate of the monitor is faster than 120 times a second.

(3) Korte’s Law for apparent motion suggests that the ISI (interstimulus interval) that produces:
   (a) best motion increases with spatial separation.
   (b) best motion decreases with spatial separation.
   (c) worst motion increases with spatial separation.
   (d) worst motion decreases with spatial separation.
(4) Based on the motion aftereffect, if you stared at a waterfall for 30 seconds and then looked away, you would expect to perceive motion:
   (a) moving down.
   (b) moving up.
   (c) that converges to a middle point.
   (d) that expands from a middle point.

(5) The term *facial agnosia* refers to:
   (a) detection of faces where they do not exist.
   (b) difficulty discriminating faces of a different race.
   (c) expertise in discriminating faces.
   (d) difficulty recognizing or discriminating faces.

(6) In the Margaret Thatcher Illusion:
   (a) upside down eyes on an upside down face do not look so weird.
   (b) adaptation to a female face makes a gender-neutral face look masculine.
   (c) average faces look more attractive than normal faces.
   (d) neurons that normally respond to Jennifer Aniston also respond to Margaret Thatcher.

(7) For two light-skinned faces that differ only in the darkness of the lips, the dark-lipped face will appear more:
   (a) feminine.
   (b) masculine.
   (c) attractive.
   (d) unattractive.

(8) Which property of Moody images makes them particularly useful for an fMRI study of face perception?:
   (a) they are high-contrast black and white images.
   (b) they are interpreted quickly.
   (c) they do not need a control scan.
   (d) the same images upside down do not look like faces.

(9) From an information processing point of view, not processing information generally corresponds to:
   (a) forgetting it.
   (b) attending to it.
   (c) ignoring it.
   (d) long reaction times.

(10) The attentional paradox refers to the fact that usually attention:
    (a) strengthens neural representations of visual stimuli, but their percepts do not usually change.
    (b) changes neural processing of stimuli, but does not change information processing.
    (c) improves perception of stimuli but does not improve reaction times to stimuli.
    (d) only works for faces.
(11) The magic trick with cards that was shown during lecture worked primarily because:
   (a) when you attend to one card you also process all the information about nearby cards.
   (b) you forget which card you selected during the mask.
   (c) when you attend to one card you partly process information about the other cards.
   (d) you can only process information about one card at a time.

(12) Advertisements tend to use flashing images because they:
   (a) tend to attract attention.
   (b) block out masking effects.
   (c) allow you to process more than one thing at a time.
   (d) take advantage of visual persistence.

(13) In the “feature map” explanation of visual search, fast performance for a feature search was because:
   (a) the target had activity in two different maps.
   (b) the distractors were represented in different maps than the target.
   (c) attention easily switches between maps.
   (d) the distractors draw attention to the target.

(14) Most people are able to tie a shoelace without seeming to think about it. This ability is most related to:
   (a) the attentional paradox.
   (b) automaticity.
   (c) the Stroop effect.
   (d) information processing.

(15) In a conjunctive visual search experiment, the reaction time for target-present trials has a slope half that for target-absent trials. This is because:
   (a) on average you have to go through half as many items for the target-present trials.
   (b) when the target is present it will “pop-out”.
   (c) on average you have to go through twice as many items for the target-present trials.
   (d) there are no feature maps for conjunctive items.

(16) Evidence for the attentional blink is that detection of the:
   (a) first target is worse when followed quickly by a second target.
   (b) first target is better when followed quickly by a second target.
   (c) second target is worse when preceded by a first target.
   (d) second target is better when preceded by a first target.

(17) For this exam I asked you to study a lot of material, but I am only asking questions about part of that material. This is most similar to:
   (a) the whole report method.
   (b) the partial report method.
   (c) a visual search experiment.
   (d) immediate serial recall.

(18) The modality effect for an immediate serial recall memory task is best explained by:
   (a) short term memory.
   (b) long term memory.
   (c) differences between iconic memory and echoic memory.
   (d) similarities between iconic memory and echoic memory.
(19) The main conclusion from the study of iconic memory in infants is that infants have:
(a) a much larger iconic memory than adults.
(b) a much smaller iconic memory than adults.
(c) an iconic memory quite similar to adults.
(d) an iconic memory similar in capacity to adults but much shorter in duration.

(20) Which memory system has the highest capacity?:
(a) echoic memory.
(b) iconic memory.
(c) short term memory.
(d) working memory.

(21) Which memory system has been proposed to be involved in primacy effects for a free recall memory task?:
(a) echoic memory.
(b) iconic memory.
(c) short term memory.
(d) long term memory.

(22) The memory span experiment has been interpreted to tell us something about the:
(a) capacity of long term memory.
(b) duration of information in long term memory.
(c) capacity of short term memory.
(d) duration of information in short term memory.

(23) The “savings” measure of memory was used in the experiment by:
(a) Ebbinghaus.
(b) Brown.
(c) Peterson & Peterson.
(d) Miller.

(24) In the modal model of memory, storage might involve an ordered flow of information along what systems?:
(a) sensory memory → short term memory → long term memory.
(b) short term memory → sensory memory → long term memory.
(c) sensory memory → long term memory → short term memory.
(d) short term memory → long term memory → sensory memory.

(25) In Sternberg’s hypothetical parallel search of short term memory, which of the following statements would be true of the Sternberg experiment?:
(a) increases in the number of items in memory should increase reaction time.
(b) increases in the number of items in memory should reduce reaction time.
(c) increases in the number of items in memory should not affect reaction time.
(d) no trials should increase twice as fast as yes trials with increases in the number of items in memory.
(26) In the Brooks study, the pointing response method was probably using resources from what part of working memory?:
(a) central executive.
(b) visuo-spatial sketchpad.
(c) phonological loop.
(d) long term memory.

(27) The main difference between short term memory and working memory is:
(a) capacity.
(b) duration.
(c) speed.
(d) the hypothesized processes involved in memory.

(28) The measurement of memory span is based on what kind of memory task:
(a) immediate recognition.
(b) immediate serial recall.
(c) delayed unordered recall.
(d) repetitive recognition.

(29) As children age, their memory span increases. According to the properties of the phonological loop this is because with development:
(a) the capacity of the phonological store increases.
(b) short term memory gets bigger.
(c) rehearsal speed increases.
(d) the central executive becomes more efficient.

(30) According to the properties of working memory discussed in class, which list of items would be most difficult to remember in an immediate serial recall task?:
(a) g, k, h, t, r.
(b) b, e, p, c, g.
(c) q, h, m, v, r.
(d) i, r, t, s, k.

(31) Suppose you discover that speakers of Swahili use words for digits that allow them to be spoken faster than the corresponding words for English. What would you anticipate when measuring the memory span for digits of Swahili speakers? Their memory span would be:
(a) longer than 7, because they rehearse more items in a given time span.
(b) longer than 7, because the items fade more slowly.
(c) shorter than 7, because they rehearse too quickly for items to be remembered.
(d) shorter than 7, because fast speaking also means fast decay.

(32) Video game playing seems to alter the properties of:
(a) the central executive.
(b) the articulatory control process.
(c) the phonological store.
(d) the visual spatial sketchpad.
(33) The word length effect is mostly due to the properties of:
   (a) the central executive.
   (b) the articulatory control process.
   (c) the phonological store.
   (d) the visual spatial sketchpad.

(34) The phonological similarity effect is mostly due to the properties of:
   (a) the central executive.
   (b) the articulatory control process.
   (c) the phonological store.
   (d) the visual spatial sketchpad.

(35) Which of the following is not a property of the articulatory control process?:
   (a) it is involved in mental rehearsal.
   (b) it is involved in spoken (out-loud) rehearsal.
   (c) it stores information for a bit more than a second.
   (d) it refreshes information in the phonological store.

(36) The partial report experiment revealed the existence of:
   (a) echoic memory.
   (b) iconic memory.
   (c) short term memory.
   (d) working memory.

(37) What type of information is encoded in the phonological loop?
   (a) words.
   (b) letters.
   (c) sounds.
   (d) speech sounds.

(38) A key difference between real and apparent motion is that:
   (a) neurons do not respond to apparent motion.
   (b) apparent motion does not produce a motion afterimage.
   (c) apparent motion can be produced with non-moving stimuli.
   (d) real motion always takes time.

(39) In the Stroop experiment, which of the following would cause the biggest interference?:
   (a) reading the word “red” when it is printed in green ink.
   (b) reading the word “red” when it is printed in red ink.
   (c) identifying the color of ink for the word “red” when it is printed in green ink.
   (d) identifying the color of ink for the word “red” when it is printed in red ink.

(40) In the Brown-Peterson experiment subjects had to count backwards by threes. This was done because it:
   (a) blocks out long-term memory.
   (b) prevents rehearsal of items
   (c) delays the fading of information from short term memory
   (d) provides a context to improve subsequent recall.
Exam 3

Name ____________________________

CogLab ID ________________________

Your score on this exam will count toward 16% 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 will lose points for extremely bad grammar or syntax.

(A) Describe the CogLab mental rotation experiment and typical results. What does the pattern of results tell us about the properties of mental images?
(B) Discuss the role of discrimination in memory. Give an example of a memory phenomena or task where discrimination would play an important role. (There are several valid ways to answer this question.)

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

(1) Being given a partial list of to-be-remembered items at the time of recall can make the remaining items more difficult to recall. This is called the:
   (a) part set cuing effect.
   (b) partial report method.
   (c) false memory effect.
   (d) proactive interference effect.

(2) Memory has to be defined relative to a particular recall task because of the effects of:
   (a) levels of processing.
   (b) rehearsal.
   (c) false memory.
   (d) the encoding specificity principle.

(3) Our final exam is in the same room as the lectures. This means:
   (a) the final exam will be easier because the same enhances part set cuing.
   (b) the final exam will be harder because of interference effects.
   (c) encoding specificity effects might help you remember some information.
   (d) your judgments of learning will be more accurate.
(4) When I set up a new password for my GMail account, I sometimes forget the (different) password I have been using for my Facebook account. This is an example of:
   (a) proactive interference.
   (b) retroactive interference.
   (c) retrograde amnesia.
   (d) anterograde amnesia.

(5) Which of the following is most strongly related to the findings of the False Memory experiment?:
   (a) proactive interference.
   (b) retroactive interference.
   (c) source monitoring.
   (d) phonological similarity.

(6) If I always drink tea while studying for an exam, then I might do better on the exam by:
   (a) drinking tea during the exam.
   (b) switching to coffee during the exam.
   (c) not drinking tea the night before.
   (d) smelling, but not drinking, tea during the exam.

(7) The build up of proactive interference:
   (a) occurs only for the memory span experiment.
   (b) only occurs when the stimuli are identical.
   (c) can be released when stimuli change substantially.
   (d) is essentially the same thing as a practice effect.

(8) The counting backward task in the Brown-Peterson memory experiment is an example of:
   (a) proactive interference.
   (b) retroactive interference.
   (c) encoding specificity.
   (d) false memory.

(9) In Penfield’s (1959) studies, patients reported vivid memories when he:
   (a) analyzed their dreams.
   (b) stimulated their temporal lobes.
   (c) induced an epileptic seizure.
   (d) stimulated a false memory.

(10) Which of the following studies is most closely related to a situation where a therapist “implants” a memory?:
    (a) Loftus & Palmer (1974).
    (b) Posner & Keele (1968)
    (c) Kosslyn (1976).
    (d) Ratcliff & McKoon (1978).
(11) In memory misattribution studies, interview questions seem to be able to:
(a) make people extra confident about their memories.
(b) cause people to forget past events.
(c) change the vividness of a memory.
(d) change the content of a memory.

(12) Anterograde amnesia is a condition where a person cannot:
(a) remember past events.
(b) explicitly remember past events.
(c) learn new events.
(d) remember learning new events.

(13) In most cases of retrograde amnesia, which memories are most likely to be the first to be recovered?:
(a) early childhood.
(b) teenage years.
(c) a few months before the onset of the amnesia.
(d) a few months after the onset of the amnesia.

(14) If I ask you to tell me what we were discussing in class on the day after the first exam, I am asking you to access which type of LTM?:
(a) explicit.
(b) implicit.
(c) nondeclarative.
(d) priming.

(15) Infantile amnesia refers to the finding that:
(a) young children have poor memories.
(b) young children cannot learn new things.
(c) adults cannot remember things that happened to them when they were young.
(d) adults cannot remember things that happen to other young children.

(16) One of the main problems with work on repression is that:
(a) infantile amnesia prevents recall of repressed memories.
(b) you need two sources of verification to be sure a repressed memory is real.
(c) most repressed memories are actually flashbulb memories.
(d) it is difficult to verify that a “repressed” memory is actually forgotten.

(17) Many educators believe that different teaching methods should be used to educate children with different learning styles. A problem with this belief is that:
(a) they do not take into account level of processing effects.
(b) there is no evidence to support this claim.
(c) people cannot report their preferred learning style.
(d) everyone has the same learning style.

(18) When subject SF increased his memory span to 81 digits he learned to:
(a) rehearse items in STM very quickly.
(b) expand the capacity of his phonological store.
(c) use a shallow level of processing.
(d) use LTM for the task.
(19) Which feature is not important for the method of loci?:
   (a) visualize a mental walk.
   (b) identify landmarks.
   (c) picture exactly the item you want to remember with the landmark.
   (d) use bizarre imagery.

(20) According to the levels of processing theory, which produces the best memory?:
   (a) deep processing.
   (b) shallow processing.
   (c) visual processing.
   (d) each person knows the best level for their own memory.

(21) When studying information on flash cards, the best approach is to:
   (a) study all items, but only test for ones you have not yet mastered.
   (b) study only items you have not mastered.
   (c) keep testing yourself on all items.
   (d) test yourself only on items you have not mastered.

(22) In the prototype theory of concepts, a concept is a:
   (a) definition.
   (b) set of remembered examples of the concept.
   (c) set of representative examples of the concept.
   (d) single representative of the concept.

(23) The simplest statement that can be judged as true or false is called a:
   (a) definition.
   (b) exemplar.
   (c) proposition.
   (d) prototype.

(24) The main conclusion of the Ratcliff & McKoon (1978) study was that:
   (a) prototypes cannot represent variability within a concept.
   (b) concepts within a proposition can prime each other.
   (c) concepts can prime other similar concepts.
   (d) concepts exist within LTM but not STM.

(25) One problem with a definition approach to concepts is:
   (a) certain characteristics are necessary to define a concept.
   (b) certain characteristics are sufficient to define a concept.
   (c) it works for most concepts, but not abstract concepts like virtue or morality.
   (d) it does not seem to be consistent with how people actually work with concepts.

(26) Many people think that Reno is east of San Diego. This suggests that mental maps are:
   (a) just like real images.
   (b) influenced by propositional information.
   (c) not influenced by propositional information.
   (d) prototypes.
(27) Kosslyn (1976) asked people to think about a lion and then measured:
(a) the number of correct reports about relative sizes of body parts.
(b) estimates of the size of body parts.
(c) reaction times for verifying statements about lions.
(d) the size of the mental image.

(28) Which statement is most accurate about mental imagery?:
(a) it is all propositions.
(b) it is purely perceptual.
(c) everyone has vivid mental imagery.
(d) it has a visual component but can be influenced by propositions.

(29) Sleep seems to affect memory by:
(a) producing better recall.
(b) producing worse recognition.
(c) making it easier to connect relationships in recalled information.
(d) making it harder to connect relationships in recalled information.

(30) Scientists recently claimed that crabs can feel pain. This study is most closely related to:
(a) distributed processing.
(b) the mind-body problem.
(c) the Chinese room problem.
(d) qualia.

(31) The philosopher Descartes suggested that the pineal gland was a link between:
(a) perception and memory.
(b) memory and personality.
(c) mind and body.
(d) man and god.

(32) Because of distributed processing, trying to find the moment at which someone is consciously aware of a stimulus:
(a) must discount the processing time at the eye.
(b) is not something that can be meaningfully measured.
(c) depends on the context in which something is asked.
(d) can only occur for things in LTM.

(33) Suppose you cannot answer a question on an exam, but you know you studied the material. The most likely interpretation of the status of the memory is:
(a) it has faded away from your brain.
(b) it has been overwritten by information you studied later.
(c) it exists in your brain, but cannot be recalled.
(d) you have the information in STM but not in LTM.
(34) In the Posner & Keele (1968) study of concept formation, the results suggested that some concepts are:
(a) prototypes.
(b) propositions
(c) mental images.
(d) ad hoc.

(35) The Chinese room problem argues against
(a) materialism.
(b) dualism.
(c) the Turing test.
(d) qualia.

(36) An exemplar theory of concepts can produce prototype behavior because
(a) a prototype is one of the examples.
(b) exemplars account for variability among prototypes.
(c) a prototype is a stimulus that matches many examples.
(d) there are no *ad hoc* prototypes.

(37) Flashbulb memories seem to produce
(a) uncommonly accurate memories.
(b) uncommonly vivid memories.
(c) memories that are really similar to regular memories.
(d) very strong encoding specificity.

(38) Judgements of Learning are most accurate if you
(a) estimate right after studying.
(b) estimate after a delay from studying.
(c) process information more deeply.
(d) sleep.

(39) In the experiment on indoor and outdoor sports, we concluded that proactive interference operated mainly on memory recall rather than storage. The evidence for this claim was that:
(a) people did not notice the difference between the sports.
(b) people showed proactive interference regardless of the sport.
(c) a hint about the sport being indoor vs. outdoor helped memory recall.
(d) there was no release from proactive interference.

(40) Which memory system seems to be impaired the most for retrograde amnesiacs?:
(a) short term memory.
(b) working memory.
(c) long term memory.
(d) iconic memory.
Exam 4

Your score on this exam will count toward 16% 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 will lose points for extremely bad grammar or syntax.

(A) Describe the three variables that define consonants.
(B) Explain how the mistakes of children correspond to the most confusing parts of the language. Give an example. How do we know that these are the most confusing parts?

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

(1) The English language has several concepts that correspond to different words, like “driver” and “chauffeur”. This is because
   (a) language is an instinct.
   (b) we need different parts of speech for the same word.
   (c) children learn pidgins before learning language.
   (d) of the Norman invasion of England in 1066.

(2) The idea that language is an instinct suggests that:
   (a) infants are biased to learn the language of their parents.
   (b) people have an innate ability to learn some human language.
   (c) all people really speak the same language.
   (d) dolphins do not have language skills.

(3) In some slave environments, groups of people are put together without a common language. They often communicate with a:
   (a) creole.
   (b) dialect.
   (c) pidgin.
   (d) schema.
(4) When a speaker of Black English Vernacular says something like “If you bad,” they are speaking:
(a) incorrectly.
(b) correctly.
(c) a pidgen.
(d) a creole.

(5) Human speech is blurry. This is mostly because speakers:
(a) skip over words to save time.
(b) make contractions.
(c) coarticulate.
(d) deviate from correct pronunciation.

(6) Language is made up of symbols and grammar. The term *symbols* refers to the:
(a) rules of word order.
(b) words.
(c) meaning.
(d) phrases.

(7) A sentence like “Colorless green ideas sleep furiously” is interesting because it:
(a) is grammatically correct.
(b) is ambiguous.
(c) is an example of recursion.
(d) emphasizes long-term dependencies.

(8) The existence of long-term dependencies in language argue against the idea that:
(a) parts of speech matter for language.
(b) grammar and meaning are related to each other.
(c) people learn language by observing statistical relationships between words.
(d) language has universals.

(9) The term *re-write rule* is most closely related to what part of language?:
(a) grammar.
(b) co-articulation.
(c) phonemes.
(d) vowels.

(10) Language universals refer to the fact that:
(a) there are common words used across almost all human languages.
(b) every one who can, uses sounds for language.
(c) children learn language in a sequence of stages.
(d) there are common patterns of grammatical rules across almost all human languages.

(11) For many words, the relationship between the speech sound and the concept is:
(a) multi-directional.
(b) defined by an exemplar.
(c) arbitrary.
(d) one to one.
(12) A suffix liked “-ed” is a:
(a) morpheme but not a word.
(b) word but not a morpheme.
(c) headless word
(d) headless morpheme.

(13) The *wug* test demonstrates that:
(a) even young children know rules for words.
(b) young children do not know rules for words.
(c) children know more about word rules than adults.
(d) young children cannot form compound nouns.

(14) In the compound word *sawtooth*, the head of the word is the:
(a) consonant “s”.
(b) syllable “sa”.
(c) noun “saw”.
(d) noun “tooth”.

(15) In the word superiority experiment (in CogLab) the experiment measures:
(a) reaction time to letters.
(b) percent correct detection of letters.
(c) reaction time to words.
(d) percent correct detection of words.

(16) Many languages have more verb forms than English. An English speaker has to com-
municate the information in these verb forms by:
(a) slowing down or speeding up the rate of talking.
(b) gesturing with the hands.
(c) making a phrase.
(d) coarticulating.

(17) The difficulty in determining the plural form of the word *walkman* is that:
(a) it is a compound noun.
(b) it is a headless compound noun.
(c) it is written like a compound noun, but it is actually an adjective-noun pair.
(d) walk is not a “root”.

(18) We argued that thinking cannot be *only* speaking to yourself because:
(a) you cannot have an ambiguous thought, but you frequently say ambiguous sentences.
(b) there are some thoughts that cannot be described with language.
(c) we cannot think of meaningless sentences.
(d) grammar is not enough for communication.

(19) Different vowels are created by:
(a) closing some part of the vocal tract.
(b) different shapes of the vocal tract.
(c) different manners of blocking the flow of air.
(d) resonating sound in your lungs.
(20) Directly after hearing a word in a sentence that has two possible meanings, a semantic priming test shows that:
   (a) both meanings influence reaction times to related words.
   (b) only one meaning influences reaction times to related words.
   (c) neither meaning influences reaction times to related words.
   (d) ambiguities are resolved by the preceding text.

(21) What is surprising about the *Buffalo buffalo*... sentence?:
   (a) it is meaningless.
   (b) it has five different interpretations.
   (c) it is easy to parse.
   (d) it is grammatically correct.

(22) *Schemas* are important for language because they:
   (a) structure the lexicon.
   (b) insure grammatical rules.
   (c) define the re-write rules.
   (d) resolve ambiguities.

(23) When we speak we often shape the vocal tract in advanced preparation for later speech sounds. This is called:
   (a) articulation.
   (b) coarticulation.
   (c) blurring.
   (d) voicing.

(24) The smallest sound unit of spoken speech is called a:
   (a) phoneme.
   (b) syllable.
   (c) morpheme.
   (d) lexicon.

(25) You can “hear” someone smile over a telephone because smiling:
   (a) shapes the vocal tract and changes speech sounds.
   (b) influences word choices.
   (c) changes the phrase tree structure.
   (d) changes the emotional dimension of consonants.

(26) People tend to say *razzle-dazzle* rather than *dazzle-razzle*. The rule is to say first the:
   (a) shorter word.
   (b) word with a leading consonant that impedes air the least.
   (c) adjective before the noun.
   (d) word with a voiced consonant.

(27) Spelling has to deviate from pronunciation because of:
   (a) voicing.
   (b) coarticulation.
   (c) ambiguity.
   (d) headless compound nouns.
(28) An adult English speaker uses only about 26 consonants. At birth the speaker could distinguish the sounds of:
(a) no consonants.
(b) 18 consonants.
(c) almost all the English consonants.
(d) almost all consonants (including those not used in English).

(29) The language mistakes that children make are among the most difficult parts of language. We know this because:
(a) the mistakes are “universals”.
(b) given any rule, most children obey the rule most of the time.
(c) adults make the same kinds of mistakes.
(d) the mistakes involve long-term dependencies.

(30) Probably the best time to learn a second language is:
(a) kindergarten.
(b) middle school.
(c) high school.
(d) college.

(31) An advantage of forming sentences by combining parts of speech rather than individual words is that:
(a) it is easier to learn a single example than a rule.
(b) pronunciation is constant.
(c) learning a word and its part of speech means it can be used in many ways.
(d) letters are harder to detect than words.

(32) Children exposed to only a pidgin can create a creole. This suggests that children generally:
(a) invent language.
(b) learn language by mimicking their parents.
(c) are born with a complete set of language skills.
(d) cannot learn all possible languages.

(33) Anomia refers to a language deficit in the ability to work with:
(a) speech sounds.
(b) words.
(c) grammar
(d) schemas.

(34) Fluid empty speech, difficulty understanding speech, and difficulty naming objects are characteristics of which language deficit?:
(a) Broca’s aphasia.
(b) anomia.
(c) Wernicke’s aphasia.
(d) specific language impairment.
(35) Damage to regions of the temporal lobe around Wernicke’s area is likely to cause what kind of language problems?:
   (a) poor grammar.
   (b) difficulty reading function words.
   (c) problems parsing spoken sentences.
   (d) difficulty naming objects.

(36) Computer voices sound odd because the produced speech does not:
   (a) enunciate each syllable.
   (b) properly coarticulate.
   (c) parse the phrases.
   (d) speak in the correct dialect.

(37) A sentence like The plastic pencil marks... is difficult to parse because:
   (a) lots of words are ambiguous.
   (b) coarticulation blurs words together.
   (c) the phrase trees are jumbled.
   (d) the sentence is headless.

(38) The final conclusion regarding chimps trying to learning sign language is that:
   (a) they learned some words but little grammar.
   (b) they are not smart enough to learn language.
   (c) they learned only as much as a three year old child.
   (d) they learned only as much as a five year old child.

(39) Here in the midwest we mostly speak Standard American English. This form of English is:
   (a) the prototype form of the language.
   (b) the proper form of the language.
   (c) the most representative form of the language.
   (d) a dialect of the English language.

(40) The mental dictionary containing information about words and their part of speech is called the:
   (a) thesaurus.
   (b) lexicon.
   (c) parser.
   (d) articulator.