Introduction to Cognitive Psychology: PSY 200

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Exam 1

Your score on this exam will count toward 10% of your final grade. Each question is worth 2 points. Enter your answer on the scantron sheet. Enter only one choice for each question. There is no need to put your name on this exam, but do hand it in with your scantron sheet.

1. The cortex:
   a) is part of the cerebellum.
   b) is comprised of eight layers of neurons.
   c) contains large fissures that separate five major areas.
   d) lacks discernable order.

2. Broadman’s areas:
   a) are based on how slices of the cortex look under a microscope.
   b) are based on different tissue types identified by MRI scans.
   c) are based on single cell recordings of cortical neurons in monkeys.
   d) have names like Region 16 and Region 12.

3. Imagine that a right-handed person whose corpus callousm has been severed is wearing headphones and hears the word “apple” through the right earpiece and “frog” through the left earpiece. Based on what you learned in class, if they were asked to say what they heard, what word/words would you expect them to say?
   a) “apple”
   b) “frog”
   c) “apple and frog”
   d) “I don’t know”

4. If someone taps your left shoulder, which lobe and hemisphere would process that sensory information?
   a) Occiptal lobe; left hemisphere
   b) Parietal lobe; left hemisphere
   c) Occiptal lobe; right hemisphere
   d) Parietal lobe; right hemisphere
5. Which of the following brain areas is NOT part of the hind-brain?
   a) Cerebellum
   b) Hypothalamus
   c) Temporal lobe
   d) Thalamus

6. Which lobe of the brain is associated with planning and prediction?
   a) Frontal lobe
   b) Limbic lobe
   c) Parietal lobe
   d) Temporal lobe

7. In class, you watched a video of a split-brain patient who saw words presented on the left and right side of a screen. He could only verbally report the words that were presented on the right side of the screen. Why was that the case?
   a) Information from the left eye goes to the right hemisphere of the brain, which cannot produce speech.
   b) Information from the left eye goes to the left hemisphere of the brain, which cannot produce speech.
   c) Information from the left visual field goes to the right hemisphere of the brain, which cannot produce speech.
   d) Information from the left visual field goes to the left hemisphere of the brain, which cannot produce speech.

8. In the CogLab “Brain Asymmetry”, you saw words presented on the left and right side of a central fixation cross. What were you asked to do after you saw each word?
   a) Say the word out loud
   b) Indicate whether the word was the same or different from the word on the screen
   c) Indicate whether the word was old or new
   d) Type the word into the text-box

9. Why does EEG have poor spatial resolution?
   a) Different parts of the brain are more/less conductive than others
   b) Small movements can cause blurring
   c) The electrical currents move too slowly to be precise
   d) None of the above

10. Which of the following is a benefit to MRI scans?
    a) Cheap to use
    b) Fantastic temporal resolution
    c) Shows brain structure
    d) Shows where brain activity is occurring
11. Compared to fMRI, EEG has:
   a) better spatial resolution.
   b) worse spatial resolution.
   c) worse temporal resolution.
   d) both (b) and (c).

12. What is an advantage of using EEG?:
   a) It differentiates between tissue types.
   b) It enables us to identify anatomical differences between brains.
   c) It allows us to determine precisely what part of the brain is making the electrical signal.
   d) It provides a measurement of brain activity that is nearly in real time.

13. Suppose that you want to run a study to see whether there are differences between the brain activity of experts and novices in a meditation task. Why is it better to use fMRI rather than MRI?:
   a) MRI only shows structure.
   b) MRI has worse spatial resolution.
   c) MRI differentiates between active and inactive neurons.
   d) MRI cannot differentiate between different cell types.

14. fMRI uses the BOLD signal to detect:
   a) only brain activity that is statistically significant.
   b) activity in the brain that is relevant only to the task.
   c) glucose metabolism in brain tissue.
   d) local changes in blood flow.

15. In an article that uses fMRI, there is a figure showing the results of an experiment in which each participant experiences two alternating conditions: hearing a tone, or hearing no tone. The figure depicts a cross-section of the brain. Although the image is largely gray, there are a few colored patches. These patches likely indicate:
   a) the averaged fMRI signals across participants while in the tone condition.
   b) the averaged fMRI signals across participants while in the no-tone condition.
   c) the indifference map, which indicates places in the brain that are involved in both conditions.
   d) places in the brain where the fMRI signals are statistically different between conditions.
16. In Bennett et al. (2010), a salmon in an fMRI scanner was shown a series of photographs of people in social situations that were either socially inclusive or exclusive. The results of this study, i.e., there is a significant difference in fMRI activity in some regions of the brain, indicate:
   a) the areas of the brain that have the strongest activation when seeing images with an emotional valance.
   b) that some fish have social sensitivity similar to humans.
   c) that such scanning techniques are insurmountably problematic.
   d) that statistically significant findings may occur even with purely random noise.

17. Suppose you want to see whether the areas in the brain activated for speech during a conversation are the same as those activated during jazz music improvisation. You decide to conduct your study using fMRI and have expert and novice musicians talk or play improvised music in the scanner. Because you are using fMRI, a problem you may encounter is:
   a) blurred images.
   b) inadequate spatial resolution.
   c) finding a nonmetallic musical instrument.
   d) all of these.

18. What is the purpose of a tongue display unit (TDU)?
   a) Convert auditory information to help deaf people “hear”
   b) Convert visual information to help blind people “see”
   c) Enhance a person’s sense of taste
   d) Enhance a person’s sense of touch

19. Which of the following is a question that an fMRI is best suited to answering?
   a) Does the person being scanned have above average intelligence?
   b) What is the person being scanned thinking about?
   c) What are the anatomical differences between an alcoholic’s brain and non-alcoholic’s brain?
   d) Which areas of the brain are involved in interpreting speech but not interpreting music?

20. Suppose that I told you that children have more brain activity (as measured by an fMRI) while answering questions about a story than when listening to a story. What could you conclude from this information?
   a) Answering questions is more difficult than listening to a story
   b) Children will learn more if they are asked questions about stories than if they only listen to them
   c) Children who listen to stories without answering questions are smarter than children who answer questions about stories
   d) None of the above
21. Which part of a neuron outputs signals to other neurons?
   a) Axon
   b) Dendrite
   c) Myelin sheath
   d) Soma

22. Which of the following is NOT a limitation of fMRI scanning?
   a) It is difficult to compare across subjects
   b) It is highly invasive
   c) It is susceptible to blurring if subjects move
   d) None of the above (all are limitations)

23. Someone who suffers from epilepsy might try all of the following to treat their epilepsy except?
   a) Avoiding stress
   b) Following a diet
   c) Maintaining a regular schedule
   d) Taking L-dopa

24. A neuron that sends an excitatory signal:
   a) Is more likely to have an action potential after receiving a signal
   b) Is less likely to have an action potential after receiving a signal
   c) Makes a receiving neuron more likely to have an action potential
   d) Makes a receiving neuron less likely to have an action potential

25. Which of the following disorders is associated with too much of the neurotransmitter dopamine?
   a) Epilepsy
   b) Parkinson’s
   c) Tourette’s
   d) Depression

26. What is different about neurons compared to nearly all other cells in the body?
   a) a neuron has a membrane.
   b) a neuron has an action potential.
   c) neurons come in lots of different shapes and sizes.
   d) information from one neuron flows to another across a gap called the perisinusoidal space.
27. It is theorized that epileptic seizures are caused by:
   a) excitatory cells not functioning properly.
   b) inhibitory cells not functioning properly.
   c) an excess of myelin.
   d) both (b) and (c).

28. Which of the following statements characterize a neuron at resting potential?
   a) the electrical difference between the interior and exterior is zero mV.
   b) there are equal amounts of sodium inside and outside the neuron.
   c) the electrical difference between the interior and exterior is -70 mV.
   d) there are equal amounts of potassium inside and outside the neuron.

29. Many complex events happen when one neuron sends a signal to another. Here are three of them.
   1 Neurotransmitters may enter protein gates on the postsynaptic neuron.
   2 Neurotransmitters diffuse and cross the synaptic cleft.
   3 An action potential triggers the release of neurotransmitters.

Choose the answer below that places these events in the correct temporal order.
   a) 1, 2, 3
   b) 1, 3, 2
   c) 3, 1, 2
   d) 3, 2, 1

30. One drug used to treat Tourette’s syndrome is Haldol. Haldol is an effective treatment of Tourette’s because:
   a) it increases the amount of dopamine that the brain makes.
   b) it reduces the amount of dopamine that the brain makes.
   c) it triggers dopamine to enter receptors.
   d) it blocks dopamine from entering receptors.

31. A firing rate:
   a) is the number of action potentials that a cell produces during a particular length of time.
   b) can be, for example, 32 Hz.
   c) is the number of neurotransmitters that a cell releases during a particular length of time.
   d) both (a) and (b).

32. Simple cells in the visual cortex have oriented receptive fields that:
   a) are sensitive to edges of a preferred orientation at many different locations.
   b) are sensitive to bars of a preferred orientation a particular location.
   c) are sensitive to directions of motion.
   d) both (a) and (c).
33. Complex cells in the visual cortex have receptive fields that:
   a) are sensitive to direction of contrast.
   b) are sensitive to bars of a preferred orientation at a particular location.
   c) are sensitive to faces in profile.
   d) both (a) and (c).

34. Why do we have a blind spot in our vision?
   a) It is in shadow, so no light hits it.
   b) There are no receptors in that spot.
   c) Our nose is in the way.
   d) None of the above.

35. For a neuron near the retina with an on-center, off-surround receptive field, if there is
    already stimulation at the center and light is added to the surrounding region what
    will happen to the firing rate of the neuron?
    a) it will increase.
    b) it will not change.
    c) it will decrease.
    d) it will increase then decrease.

36. Desmione et al. (1984) found that, in the inferior temporal cortex of monkeys, some
    cells respond to:
    a) Monkey faces, looking forward.
    b) Human faces, in profile.
    c) Hands.
    d) Eyes.

37. In the CogLab “Blind Spot”, which of the following were you asked to do?
    a) Cover or close your left eye.
    b) Look at a blue/green square.
    c) Click a button when the yellow circle disappeared.
    d) All of the above.

38. According to the resonance hypothesis, cognitive events correspond to:
    a) a pattern of activations across a set of neurons.
    b) a stable pattern of activations across a set of neurons.
    c) a network of neurons with reciprocal connection weights.
    d) a network of neurons with both excitation and inhibition.
39. A rule for updating cell activations was presented in class. The rule is used to calculate whether:
   a) a cell is connected to another cell.
   b) a weight has a nonzero value.
   c) a cell is active.
   d) all of the above.

40. In the first neural network demo, the active neurons spelled ‘PSYCH’. After the neurons representing ‘Y’ and ‘C’ were removed, the network:
   a) could still represent ‘PSYCH’.
   b) was not able to continue to function.
   c) no longer had error correction capabilities.
   d) continued to function.

41. In class you saw an image consisting of four pac men. The network of neurons in area V2 ‘created’ illusory contours between the edges of the pac men, making you perceive a square. This phenomenon is most closely related to:
   a) error correction capabilities of a network of neurons.
   b) graceful degradation of performance as cells die.
   c) Hebb’s rule.
   d) reciprocal connection weights.

42. An emergent property of a network of neurons is a property of:
   a) each cell in the network.
   b) some cells in the network.
   c) all of the weights and cells comprising the network.
   d) only some of the network’s weights and cells.

43. Individual cells in a network are:
   a) Similar
   b) Intelligent
   c) Stupid
   d) Both (a) and (b)

44. In a network that has “settled down”, the inactive cells are being ___ by the active cells.
   a) Excited
   b) Ignored
   c) Inhibited
   d) Resonated
45. According to Hebb’s rule, if two neurons fire together what effect does it have on their connection?
   a) Nothing
   b) It is severed
   c) It is strengthened
   d) It is weakened

46. Based on the update rule we discussed in class, if a cell receives an equal number of excitatory and inhibitory signals, then the cell will:
   a) become active
   b) become inactive
   c) remain in the same state that it was in previously
   d) adjust its connection weights

47. Imagine one of your relatives recently had a baby girl and you are spending time with her. You notice the baby staring at her own hand and watching it as it moves. What is this baby doing?
   a) Entertaining itself
   b) Improving her eye-hand coordination
   c) Strengthening her muscles
   d) Trying to communicate

48. A difference between the first in-class network demo and the second in-class network demo (in which we applied Hebb’s rule) is that the network in the second demo:
   a) used a different activation rule.
   b) was self-organizing to input from its environment.
   c) cannot tolerate the loss of some cells.
   d) had a final pattern that satisfied the constraints of its connections.

49. As presented in class, the surgeon who used input from a virtual reality camera while performing surgery developed a drinking problem because:
   a) to cope with stress of performing surgery, she become a raging alcoholic.
   b) she did not know the exact nature of the neural network involved in hand-eye coordination.
   c) she learned to adjust her hand-eye coordination such that her ‘eyes’ corresponded to the location of the camera.
   d) the neural network responsible for hand-eye coordination does not self-organize in response to anything in the environment.

50. The Implicit Learning CogLab demonstrates that you can learn a pattern:
   a) only if you are consciously aware of learning it.
   b) only if you are not consciously aware of learning it.
   c) even if you are consciously aware of learning it.
   d) even if you are not consciously aware of learning it.
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Exam 2

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1. The Müller-Lyer Illusion in CogLab produced a graph of how often one line was reported as being larger than another line as a function of one of the line’s length. This graph is called a:
   a) constant stimulus relation.
   b) equivalent percept function.
   c) psychometric function.
   d) variable stimulus curve.

2. The brightness contrast illusion can be (partly) explained by the properties of center surround cells with receptive fields:
   a) located entirely inside a square.
   b) overlapping the edges of a square and its background.
   c) having the excitatory part inside the square and the inhibitory part entirely on the background.
   d) having the inhibitory part inside the square and the excitatory part entirely on the background.

3. The Craik-O’Brien-Cornsweet illusion demonstrates that:
   a) brightness perception is computed at luminance edges.
   b) brightness perception is based on simple cells.
   c) brightness calculations spread from edges to surfaces.
   d) both a and c.

4. People see gray spots at the intersections of the Hermann grid illusion because center surround cells receive:
   a) all excitation and no inhibition.
   b) equal amounts of excitation and inhibition.
   c) more inhibition at intersections than along roads.
   d) less inhibition at intersections than along roads.
5. If you viewed the standard red-white-blue American flag for 30 seconds and then looked away, you would see an afterimage with colors:
   a) green-black-yellow.
   b) red-white-blue.
   c) red-black-blue.
   d) blue-white-red.

6. The orientation gated dipole circuit produces oriented after-responses that are:
   a) the opposite color of the stimulus.
   b) 90 degrees opposite of the stimulus.
   c) 180 degrees opposite of the stimulus.
   d) color specific.

7. The critical flicker frequency is:
   a) the smallest frequency at which people can detect flicker.
   b) the smallest frequency at which people cannot detect flicker.
   c) set by electronic devices.
   d) set by the alternating current of the electrical system.

8. In the Bowen, Pola & Matin (1973) experiment on visual persistence, the key measure was:
   a) the duration of the target stimulus.
   b) the duration of the probe stimulus.
   c) the duration of the interstimulus interval (ISI) between the target and the probe.
   d) both a) and b).

9. In the neural network model discussed in class, visual persistence was hypothesized to be due to:
   a) after-responses.
   b) motion detectors.
   c) excitatory feedback.
   d) masking.

10. Which of the following visual stimuli would have the shortest persistence?:
    a) a bright dot on a dark background presented for 100 milliseconds.
    b) a bright dot on a dark background presented for 300 milliseconds.
    c) a dim dot on a dark background presented for 100 milliseconds.
    d) a dim dot on a dark background presented for 300 milliseconds.
11. In metacontrast masking, as in CogLab, the strongest effect of the mask occurs when:
   a) the target and mask spatially overlap.
   b) the target and mask occur at the same time.
   c) the mask is delayed by about 50 milliseconds relative to the target.
   d) the mask is delayed by about 500 milliseconds relative to the target.

12. A Reichardt motion detector is sensitive to motion in a specific:
   a) location.
   b) direction.
   c) speed.
   d) all of these.

13. Based on the properties of the motion aftereffect, if you stared at a waterfall for 30 seconds and then looked at the ground, the ground would appear to be:
   a) moving downward.
   b) moving upward.
   c) expanding.
   d) contracting.

14. In the information processing view of cognition, attention often corresponds to:
   a) creating information.
   b) processing information.
   c) saving information.
   d) withholding information.

15. The CogLab Simon effect experiment requires the subject to identify whether a visual stimulus is:
   a) congruent or incongruent.
   b) fast or slow.
   c) on the right or left side.
   d) red or green.

16. Applied cognitive psychology is often called:
   a) action science.
   b) human factors.
   c) personal design.
   d) subject focused science.
17. It takes quite some time to detect changes in images if there is a blank gray frame between them. This is largely because:
   a) iconic memory has a small capacity.
   b) the gray frame masks the images.
   c) the normal cues to changes across images are generated everywhere.
   d) we cannot process brief images.

18. Attentional focus improves processing of visual information but typically does not change perceptual experience. This aspect of cognition is most closely related to:
   a) automaticity.
   b) capacity.
   c) persistence.
   d) the attentional paradox.

19. We can see bluish-green, but not reddish-green. This property is largely because of the competition between:
   a) pathways of a gated dipole.
   b) simple cells and complex cells.
   c) working memory and short-term memory.
   d) the visuo-spatial sketchpad and the phonological loop.

20. Which aspect of cognition explains the attentional blink?
   a) afterimages.
   b) masking.
   c) it takes time to process a seen letter so that you will remember it later.
   d) every aspect of cognition involves time.

21. What varies in the CogLab attentional blink experiment?
   a) the number of letters between the first and second target.
   b) the number letters in the stream.
   c) the number of targets.
   d) the duration of letters.

22. What type of search is involved in the feature condition of a visual search experiment?:
   a) parallel.
   b) parallel exhaustive.
   c) serial self-terminating.
   d) serial exhaustive.
23. According to the feature map theory, set size does not matter when searching for a green target among blue distractors because:
   a) searching for a color is automatized.
   b) mental imagery guides the search.
   c) neurons coding green are in a different feature map than neurons coding blue.
   d) neurons coding blue point to the green target in their feature map.

24. On factory assembly lines people often have to perform exactly the same task for long periods of time. This is a situation where you would expect people to:
   a) automatize the task.
   b) learn to use a parallel search.
   c) utilize iconic memory.
   d) transfer learning from short term memory to long term memory.

25. Which of the following is a key difference between the partial-report and whole-report methods?:
   a) the stimulus is a 3 by 4 matrix of letters.
   b) the stimulus is presented for only a few milliseconds.
   c) the subject uses persisting representations to report some letters.
   d) a cue indicates which row to report.

26. The partial report experiment suggests the existence of:
   a) iconic memory.
   b) short-term memory.
   c) working memory.
   d) long-term memory.

27. The partial report method suggest a bigger capacity of iconic memory than the whole report method. This is mainly because:
   a) the whole report method introduces masking.
   b) the partial report method uses persistence.
   c) the partial report method allows you to attend to fading stimulus information.
   d) the whole report method requires guessing.

28. Which of the following is true of iconic memory?
   a) It last longer than echoic memory
   b) It has a larger capacity than echoic memory
   c) It handles auditory information
   d) It lasts approximately 4 seconds
29. You are asked to report back letters during an immediate serial recall task. Which presentation type will produce a recency effect?
   a) you listen to the letters being spoken.
   b) you see the letters on a computer screen.
   c) the letters are presented through a tongue display unit.
   d) both (a) and (b)

30. The suffix effect is most closely related to:
   a) the capacity of iconic memory.
   b) the duration of echoic memory.
   c) masking in echoic memory.
   d) the partial report method.

31. Phone operators avoid pleasantries after giving you a phone number because they want to limit interference with information in:
   a) iconic memory.
   b) echoic memory.
   c) STM.
   d) LTM.

32. The stimuli in Ebbinghaus' memory experiment were:
   a) words.
   b) letters.
   c) nonsense syllables.
   d) pictures.

33. Ebbinghaus' memory experiment suggests that some memories, in some form, can last:
   a) up to 18 seconds.
   b) a few days.
   c) about a week.
   d) a lifetime.

34. In an experiment by Ebbinghaus' he measured savings. What is used to calculate savings?
   a) Number of nonsense syllables forgotten
   b) Number of nonsense syllables remembered
   c) Amount of time spent relearning nonsense syllables
   d) Amount of time passed before forgetting all nonsense syllables
35. The Brown-Peterson memory experiment suggests that:
   a) long-term memory can last for months.
   b) long-term memory as almost unlimited capacity.
   c) short-term memory can last for a few seconds.
   d) short-term memory can hold about seven items.

36. In the modal model of memory, the typical flow of information is:
   a) sensory memory → short-term memory → long-term memory.
   b) short-term memory → sensory memory → long-term memory.
   c) short-term memory → long-term memory → sensory memory.
   d) sensory memory → long-term memory → short-term memory.

37. The memory span experiment suggests that:
   a) long-term memory can last for months.
   b) long-term memory as almost unlimited capacity.
   c) short-term memory can last for a few seconds.
   d) short-term memory can hold about seven items.

38. Based on his experimental results, Sternberg concluded that the search of STM was:
   a) parallel, self-terminating.
   b) serial, self-terminating.
   c) parallel, exhaustive.
   d) serial, exhaustive.

39. In the working memory theory, the Sternberg experiment suggests the existence of the:
   a) central executive.
   b) phonological loop.
   c) STM.
   d) visuo-spatio sketchpad.

40. Which of the following results is NOT predicted by the Sternberg’s serial terminating search hypothesis?
   a) Larger set sizes will produce slower reaction times for no responses
   b) Larger set sizes will produce slower reaction times for yes responses
   c) Yes responses will be faster than no responses
   d) The effect of set size will be the same for both response types (yes and no)
41. A key difference between short-term memory and working memory is:
   a) the time scale of the memories.
   b) the hypothesized processes involved in memory.
   c) the capacity of the theories.
   d) the neural mechanisms.

42. The conclusion from the Brooks study is that:
   a) working memory contains separate systems for language and visio-spatial information.
   b) working memory includes a central executive.
   c) working memory interfaces with long-term memory.
   d) memory involves information processing.

43. Which system of working memory would be most involved in a visual search task?:
   a) short-term memory.
   b) phonological loop.
   c) visual-spatial sketchpad.
   d) long-term memory.

44. Which system in the phonological loop is most closely related to rehearsal?:
   a) articulatory control process.
   b) central executive.
   c) phonological store.
   d) visuo-spatial sketchpad.

45. One implication from studies of the irrelevant speech effect is that while studying:
   a) it helps to have the TV on.
   b) listening to a foreign language will not hurt you.
   c) listening to music without words will not hurt you.
   d) listening to pop music helps drown out other noises.

46. The duration of items in the phonological store is approximately:
   a) less than a second.
   b) 1.75 seconds.
   c) 18 seconds.
   d) a few minutes.
47. As children develop, improvements in memory span seem to be related to changes in the:
   a) articulatory control process.
   b) central executive.
   c) phonological store.
   d) visuo-spatial sketchpad.

48. The word-length effect refers to the observation that:
   a) longer words occupy more space in the phonological loop.
   b) a set of longer words are recalled better than a set of shorter words.
   c) a set of shorter words are recalled better than a set of longer words.
   d) long words leave bigger traces than short words.

49. The information in the phonological loop is a representation of:
   a) words.
   b) sounds.
   c) visual information.
   d) speech sounds.

50. The effect of phonological similarity on memory seems to be due to:
   a) interference in rehearsing similar items.
   b) improved storage of similar items.
   c) more efficient coding of similar items.
   d) interference producing faster decay of similar items.
Exam 3

Your score on this exam will count toward 15% of your final grade. Each question is worth 2 points. Enter your answer on the scantron sheet. Enter only one choice for each question. There is no need to put your name on this exam, but do hand it in with your scantron sheet.

1. The key conclusion of the part-set cuing effect is that memory performance:
   a) is context-dependent.
   b) is better for similar contexts.
   c) gets worse with more trials.
   d) cannot be trusted without object physical evidence.

2. Memory recall tends to be best when a person is tested in a similar context as when learning occurred. This is called:
   a) part-set cuing.
   b) false memory.
   c) encoding specificity.
   d) retroactive interference.

3. According to the encoding specificity principle, which combination of conditions will produce the best recall?:
   a) study words with cues, test words without cues.
   b) study words without cues, test words without cues.
   c) study words without cues, test words with cues.
   d) study words with one set of cues, test words with a different set of cues.

4. Encoding specificity makes it difficult to determine whether something is permanently forgotten because:
   a) forgetting is not about information “fading away.”
   b) of retroactive interference.
   c) it might be remembered in a context that better matched the learning context.
   d) some information is easier to remember than other information.
5. Our final exam will be held in the same room as the lecture, this might:
   a) help you recall information from the lecture because it is a similar context.
   b) prevent you from recalling information from the lecture because it is a similar context.
   c) help you recall information from the lecture because it produces retroactive inference.
   d) prevent you from recalling information from the lecture it produces retroactive inference.

6. In the CogLab False memory experiment, the participant’s task was:
   a) an immediate serial recall task.
   b) to respond as quickly as possible whether a word was previously seen.
   c) to indicate which words were previously seen on the trial.
   d) to guess the “special” lure that was related to the shown words.

7. The false memory experiment demonstrates that:
   a) memory accuracy is influenced by context.
   b) memory confidence is influenced by context.
   c) you can recognize items you have seen before but cannot recognize items you have not previously seen.
   d) you can have a memory for a word that you did not see.

8. In the serial position experiment, memory tends to get worse as the experiment proceeds, this effect is called:
   a) active interference.
   b) proactive interference.
   c) retroactive interference.
   d) Wallach interference.

9. After getting a mobile phone, I no longer remember the phone number for my (now canceled) landline phone. This is an example of:
   a) echoic memory.
   b) retroactive interference.
   c) false memory.
   d) part-set cuing.

10. Release from proactive interference tends to happen when the item on the last trial is:
    a) similar to the previous trials.
    b) different from the previous trials.
    c) stored in long term memory.
    d) stored in short term memory.
11. The phonological loop uses a(n) ______ kind of interference to explain the effect of articulatory suppression:
   a) temporary.
   b) erratic.
   c) storage.
   d) retrieval.

12. The experiment using indoor versus outdoor sports suggests that proactive interference operates at:
   a) short term memory.
   b) memory storage.
   c) memory retrieval.
   d) long term memory.

13. A problem with interpreting Penfield's (1959) study of memory as evidence of suppression is that:
   a) many reported memories could not be verified.
   b) some reported memories seemed to be false.
   c) epileptic patients might be different from non-patients.
   d) all of these.

14. Which of the following best describes the experience of a flashbulb memory?:
   a) really good memory of a traumatic event.
   b) really good memory of a traumatic event and the personal context of the event.
   c) really good memory of a traumatic event and poor memory of other events at the same time.
   d) really good memory of a traumatic event and poor memory of the personal context of the event.

15. Studies of flashbulb memories suggest that a flashbulb memory is actually:
   a) better than a regular memory.
   b) worse than a regular memory.
   c) more vivid than a regular memory.
   d) less vivid than a regular memory.

16. In the misinformation study of Loftus & Palmer (1974), a misleading question seemed to:
   a) buffer memories of slides so that they lasted longer.
   b) produce proactive interference.
   c) confuse subjects.
   d) change the memories of slides to reflect the question.
17. The misinformation effect seems to:
   a) get stronger with a longer delay before testing.
   b) gradually fade as the original memory returns.
   c) produce uncertainty about memory confidence.
   d) be weak if subjects are paid to make correct reports about what they saw.

18. When can you be certain that a memory is valid/correct?:
   a) you can picture every detail of the event.
   b) you have rehearsed the memory many times.
   c) the memory has shifted from short-term to long-term memory.
   d) you have object physical evidence.

19. The chauffeur for Princess Diana was unable to remember what happened the night of the fatal crash. The chauffeur experienced:
   a) anterograde amnesia.
   b) retrograde amnesia.
   c) short-term memory loss.
   d) a flashbulb memory.

20. When people recover from retrograde amnesia, they tend to first remember:
   a) their most recent memories.
   b) their oldest memories (e.g., from childhood).
   c) items from short-term memory.
   d) the memories just after the accident that caused amnesia.

21. Which type of memory seems to be less affected by amnesia?:
   a) explicit memory.
   b) implicit memory.
   c) fast memory.
   d) slow memory.

22. The amnesia suffered by patient HM is best described as:
   a) poor short term memory, normal long term memory.
   b) normal short term memory, poor long term memory.
   c) poor short term memory, poor storage of new information in long term memory.
   d) normal short term memory, poor long term memory of new information.

23. Given a complicated mirror-drawing task over several days, patient HM:
   a) remembered previously doing the task and did not improve over the days.
   b) could not remember previously doing the task and did not improve over the days.
   c) remembered previously doing the task and improved over the days.
   d) could not remember previously doing the task and improved over the days.
24. Infantile amnesia refers to the observation that:
   a) children younger than 4 have very poor long term memory.
   b) children younger than 4 are unable to learn new information.
   c) adults cannot remember much of what happened to them when they were younger than 4.
   d) adults cannot imagine what it is like for children younger than 4 to remember something.

25. The current view of memory researchers is that repression of unpleasant memories:
   a) only happens through therapy.
   b) is similar to amnesia.
   c) is the “opposite” of flashbulb memories.
   d) does not happen.

26. If you cannot study in the same context where you will be tested, then your best strategy is to study:
   a) in one context.
   b) in many contexts.
   c) near the testing room.
   d) in a noisy environment.

27. In the levels of processing theory of memory, deeper processing leads to:
   a) better recall.
   b) worse recall.
   c) better recall on a deep processing recall task.
   d) worse recall on a shallow processing recall task.

28. Intention to learn a set of items:
   a) hardly influences memory recall.
   b) is necessary for the levels of processing effect to happen.
   c) only matters for deep processing.
   d) matters most for shallow processing.

29. When making a Judgment of Learning estimate right after studying, students often:
   a) overestimate how much they will remember.
   b) underestimate how much they will remember.
   c) confuse easily remembered items with difficult-to-remember items.
   d) avoid deep processing.
30. Relative to the previous question, a Judgment of Learning estimate can be made more accurate by:
   a) using deep processing.
   b) taking into account encoding specificity effects.
   c) introducing a delay between study and the estimate.
   d) using shallow processing.

31. You are studying with flashcards, where you sometimes study both sides of the cards and sometimes test yourself (see one side, guess the other side). To maximize your overall memory performance, what should you do when you successfully pass a test for a card?:
   a) continue to study but save time by no longer testing the card.
   b) stop studying but continue to test the card.
   c) continue to study but stop testing the card.
   d) stop studying and stop testing the card, so you can focus on cards that you have not yet learned.

32. The main conclusion about learning styles is that:
   a) they do not exist.
   b) all teaching methods are basically the same regardless of learning style.
   c) it helps to tailor the teaching method to a learning style.
   d) it does not help to tailor the teaching method to a learning style.

33. Subject SF was able to increase his memory span to 81 digits. He did this by:
   a) increasing rehearsal speed in the phonological loop.
   b) increasing the capacity of the phonological store.
   c) learning to use long term memory to do the task.
   d) utilizing release from proactive interference.

34. Which of the following is not necessary for the peg word system of memorization?:
   a) relate to-be-remembered items to a word in a well-known rhyme.
   b) use bizarre visual imagery to associate items to words.
   c) rehearse the rhyme many times.
   d) repeat the rhyme to evoke memory recall.

35. Patient S had unusually good memory; this was (in part) because he had synesthesia. His memory ability is similar to the _______ approach to improving memory.:
   a) level of processing.
   b) method of loci
   c) dual n-back task.
   d) retrieval practice.
36. The conclusion of studies of “brain training” programs is that they:
   a) increase fluid intelligence.
   b) improve performance on the trained task.
   c) do not lead to improved performance on untrained tasks.
   d) both (b) and (c).

37. The effect of sleep on memory seems to be that sleep:
   a) strengthens memories.
   b) promotes encoding specificity.
   c) promotes better use of memories.
   d) is similar to retrieval practice.

38. The problem with a definitional approach to concepts is that:
   a) we are not sure about how to define all concepts.
   b) different people have different definitions for the same concept.
   c) people’s representations of concepts do not seem to be definitions.
   d) some concepts are mental images.

39. The stimuli in the Posner & Keele (1968) study of prototypes were:
   a) rotated 3D block images.
   b) random dot patterns.
   c) word lists.
   d) digits.

40. In the prototype theory of concepts, a concept of an “office” might be:
   a) an average office.
   b) a typical office.
   c) an idealized office.
   d) any of the above.

41. In the Posner & Keele (1968) study of prototypes, the experimental measure was:
   a) time to classify a stimulus.
   b) number of correct classifications.
   c) similarity rating.
   d) distance between stimuli.

42. Prototype theory has trouble explaining *ad hoc* concepts. The trouble is that prototypes:
   a) for such concepts become the same as definitions.
   b) cannot include the variability of such concepts.
   c) are a single “thing” in memory.
   d) appear to be created when needed.
43. In the exemplar theory, a concept is:
   a) multiple definitions.
   b) a single “thing” that resides in memory.
   c) the simplest statement that can be judged as true or false.
   d) the set of instances of the concept in memory.

44. In the exemplar theory, an item may feel like a prototype of a concept because it:
   a) perfectly matches the definition of the concept.
   b) closely matches the idealized instance of the concept in memory.
   c) matches many different examples of the concept in memory.
   d) perfectly matches one of the many different examples of the concept in memory.

45. The study of Ratcliff & McKoon (1978) found evidence:
   a) that people think in terms of exemplars.
   b) propositions can be judged as true or false.
   c) for within proposition priming.
   d) for mental images being similar to real images.

46. Which of the following is evidence that mental images are not similar to real images?:
   a) most people cannot reinterpret a mental image when it is rotated.
   b) propositions can contain as much information as an image.
   c) it takes time to mentally rotate an image.
   d) some people report having very fuzzy mental images.

47. Kosslyn’s (1976) experiment on size effects in mental images found that people accessed mental information:
   a) faster for a mental depiction than for a mental description.
   b) faster for big body parts than for small body parts.
   c) at different speeds for different modes of thinking and for different sizes of body parts.
   d) both (a) and (c).

48. The behavioral measure in the CogLab mental rotation experiment is:
   a) time to respond “same” or “different.”
   b) number of correct responses.
   c) time to form a mental image.
   d) estimated rotation angle between the stimuli.
49. The mental rotation experiment suggests that:
   a) mental images are all propositions.
   b) some aspects of mental images are like real images.
   c) mental images are strongly influenced by propositions.
   d) some people have low quality mental images.

50. A proposition is:
   a) the simplest statement that can be judged as true or false.
   b) a relationship between concepts.
   c) a learned prototype.
   d) both (a) and (b).
Introduction to Cognitive Psychology: PSY 200

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Exam 4

Your score on this exam will count toward 15% of your final grade. Each question is worth 2 points. Enter your answer on the scantron sheet. Enter only one choice for each question. There is no need to put your name on this exam, but do hand it in with your scantron sheet.

1. An implication of saying that language is an instinct is that:
   a) children will tend to learn the language spoken by their parents.
   b) new born infants already know their native tongue.
   c) people have an innate ability to work with some language.
   d) people have to learn only the “slang” parts of a language.

2. We can be confident that children do not learn language only by mimicking what they hear from adults because:
   a) adults are poor teachers because they do not speak properly.
   b) adults do not know the rules of language.
   c) children say things that they would never hear an adult say.
   d) children make too many mistakes.

3. A pidgin is:
   a) not a language.
   b) a minimalist language.
   c) non-verbal communication.
   d) a special type of accent for people on slave plantations.

4. A creole is:
   a) a language.
   b) a sign language.
   c) a proto-language.
   d) only spoken by children.

5. African American Vernacular English (AAVE) is:
   a) a pidgin.
   b) a creole.
   c) a language.
   d) a grammar.
6. The difference between a dialect and a language is:
   a) grammar.
   b) proper pronunciation.
   c) co-articulation.
   d) cultural conventions about which is “standard.”

7. An AAVE speaker who says something like “I don’t think you ready.” is:
   a) deliberately ignoring Standard American English grammar.
   b) speaking improperly.
   c) speaking correctly.
   d) misapplying the causative rule.

8. The two fundamental properties of language are:
   a) phonemes and gestures.
   b) action and reaction.
   c) symbols and grammar.
   d) fracture and coding.

9. Which of the following best describes grammar?:
   a) it relates sounds to concepts.
   b) it is necessary for communication.
   c) it is the rules of word order.
   d) it is sufficient for communication.

10. In some sentences the first word in a sentence imposes constraints on the last word of the sentence. This property is called a:
   a) long-term dependency.
   b) short-term dependency.
   c) working dependency.
   d) morpheme.

11. Which of the following is fundamentally different from the other three?:
   a) grammar.
   b) long-term dependency.
   c) phrase trees.
   d) re-write rules.

12. An advantage of learning language as rules for phrases is that:
   a) recursion is easy to learn.
   b) it avoids problems with ambiguity.
   c) it makes it easier to learn multiple uses of a word.
   d) it makes it easier to generate nonsense sentences.
13. Language universals refer to the observation that:
   a) all languages use grammar.
   b) everyone who can (e.g., can hear) uses speech for language.
   c) there are rules about the grammars used in human languages.
   d) all languages use words.

14. Words are:
   a) arbitrarily related to concepts.
   b) described by morphemes.
   c) headless.
   d) always defined by re-write rules.

15. The smallest element of language with meaning is called a:
   a) word.
   b) compound word.
   c) head.
   d) morpheme.

16. Which of the following is in the mental lexicon?:
   a) prefixes.
   b) suffixes.
   c) words.
   d) all of these.

17. The interesting finding about the word wug is that:
   a) no one can agree on the plural form of the word.
   b) children assume the plural form is wugs.
   c) it does not follow the normal rules for pluralization.
   d) it is a headless noun.

18. In English the head of a word is the:
   a) first syllable.
   b) last syllable.
   c) leftmost morpheme.
   d) rightmost morpheme.

19. To understand language requires doing something like building phrase trees in reverse. This procedure is called:
   a) anomia.
   b) re-write rules.
   c) parsing.
   d) reading.
20. The term *mentalese* refers to:
   a) phrases for communication.
   b) headless compound nouns.
   c) language universals.
   d) a non-language based form of thinking.

21. In a lexical decision task, reaction time for a word/non-word judgment is shortest when the preceding:
   a) word is of the same part of speech.
   b) word is semantically related to the test word.
   c) item is not a word.
   d) item is part of the same phrase.

22. The two basic problems of parsing are:
   a) headless nouns and language universals.
   b) mentalese and re-write rules.
   c) phrases and pluralization.
   d) word order and multiple meanings.

23. The significance of a sentence like *Time flies like an arrow.* is that:
   a) it is ambiguous.
   b) people do not generally notice the ambiguity of the sentence.
   c) it is grammatically correct.
   d) no one understands it.

24. Schemas are necessary for communication because:
   a) people often speak with grammatically incorrect sentences.
   b) people often say ambiguous sentences.
   c) grammar is not enough to ensure communication.
   d) both (b) and (c).

25. The sounds of speech are called:
   a) phonemes.
   b) syllables.
   c) words.
   d) articulators.

26. A spoken vowel is formed by:
   a) shaping the vocal tract and pushing air through.
   b) relaxing the throat to allow air through.
   c) vibrating the vocal cords.
   d) closing and then opening the lips.
27. You can “hear” someone smile because smiling changes:
   a) a person’s accent.
   b) how a person coarticulates.
   c) the produced frequencies of speech.
   d) how consonants are formed.

28. Voicing refers to:
   a) how much air is pushed through the vocal tract.
   b) where air is impeded when forming a consonant.
   c) how air is impeded when forming a consonant.
   d) vibration of the vocal cords.

29. Computer speech sounds funny because the computer:
   a) cannot produce phonemes.
   b) says every phoneme when humans would not.
   c) does not have vocal cords.
   d) does not coarticulate like people do.

30. The adjective helter-skelter follows what rule of language? The first word:
   a) is the one that was learned at a younger age.
   b) is more difficult to say.
   c) has a leading consonant that impedes airflow the least.
   d) is the head of the word.

31. Spelling of English words deviate from pronunciation because:
   a) people coarticulate.
   b) words are ambiguous.
   c) parsing is not the same thing as generating phrases.
   d) some consonants are voiced.

32. The Korean hangul alphabet is easy to learn to pronounce because the characters:
   a) follow rules.
   b) indicate how to say the sounds.
   c) are grammatical.
   d) fit within the limits of working memory.

33. When measuring infant language abilities, attaching a pacifier to a speaker and playing
   the same sound with each suck causes the infant to:
   a) suck the pacifier faster.
   b) generate fewer sucks, apparently because it is bored.
   c) match the rate of sucking to the played sound.
   d) match the pitch of sucking to the played sound.
34. Irregular verbs that do not follow the rule for forming past-tense tend to be commonly used words. This is because:
   a) irregular verbs come from other languages.
   b) irregular verbs are formed by coarticulation.
   c) words are not used if you cannot recall the irregular form of the past tense.
   d) if you cannot remember that a verb is irregular, you will tend to use the general rule for forming the past tense.

35. In the CogLab Age of Acquisition experiment, the measure was:
   a) indicating whether you knew the meaning of a word.
   b) estimating when you learned a word.
   c) reaction time for whether an item was a word or not.
   d) estimating the number of words you learned before age 4.

36. We can be confident that children make mistakes on the most confusing parts of language because:
   a) they make very few mistakes.
   b) for any given rule, most children follow it most of the time.
   c) adults make the same mistakes as children.
   d) adults make the same types of mistakes as children.

37. Everything else equal, the best time to easily learn to speak a second language is:
   a) preschool.
   b) elementary school.
   c) high school.
   d) college.

38. Very soon after birth, infants have what kind of linguistic skills?:
   a) they prefer the grammar rules for what will become their native tongue.
   b) they can better discriminate phonemes for what will become their native tongue.
   c) they respond to their name.
   d) they can discriminate all phonemes, even for those not part of what will become their native tongue.

39. Anomia refers to language difficulties:
   a) with forming phrases.
   b) understanding phrases.
   c) with generating words.
   d) with speaking phonemes.
40. Someone with Wernicke’s aphasia tends to have:
   a) stuttering, forced, speech.
   b) problems with coarticulation.
   c) fluid but empty speech.
   d) problems making consonants.

41. Broca’s area is located in the:
   a) occipital lobe.
   b) hind brain.
   c) left hemisphere.
   d) right hemisphere.

42. The primary conclusion of studies teaching chimp language is that they:
   a) learned some words but no grammar.
   b) learned some grammar but no words.
   c) could speak but not understand words.
   d) could generate but not understand complex grammar.

43. A chimp trained in American Sign Language has language skills about the same as:
   a) a newborn human infant.
   b) an infant pre-schooler.
   c) an infant middle schooler.
   d) none of the above.

44. The most serious problem with the studies of chimpanzee language skills was that researchers:
   a) did not teach true American Sign Language.
   b) were not fluent themselves in sign language.
   c) excused errors in chimp signing as being jokes or metaphors.
   d) used conditioning as a teaching method.

45. The idea that there are separate mental and physical worlds is known as:
   a) Cartesian dualism.
   b) materialism.
   c) the Turing test.
   d) mentalese.

46. Distributed processing of information in the brain implies that:
   a) consciousness arises from non-conscious processors.
   b) there is no precise moment of consciousness.
   c) there is no precise place in the brain where consciousness happens.
   d) all of these.
47. The conclusion of the Chinese room problem (as originally described) is:
   a) that language is not enough for consciousness.
   b) consciousness emerges from *pairs* of people.
   c) materialism is the only viable option.
   d) the Turing test is a bad test.

48. The image below shows a “captcha”. It is most closely related to:

![Captcha Image]

   a) Cartesian dualism.
   b) materialism.
   c) the Turing test.
   d) phrase trees.

49. Some people worry that domesticated animals feel pain. In part, this is a question about:
   a) intelligence.
   b) materialism.
   c) mentalese.
   d) qualia.

50. The possible existence of qualia is relevant to artificial intelligence because:
   a) there seems to be no way to create an artificial intelligence with qualia.
   b) if the qualia do not match human qualia, the artificial intelligence might go crazy.
   c) qualia are necessary for language.
   d) everyone has the same qualia.
Final Exam

Your score on this exam will count toward 15% of your final grade. Each question is worth 1 point. Enter your answer on the scantron sheet. Enter only one choice for each question. There is no need to put your name on this exam, but do hand it in with your scantron sheet.

1. Information from your right field of view goes to the left side of your brain. This is an example of:
   a) the modularity hypothesis.
   b) contralateral processing.
   c) proprioception.
   d) diffusion tensor imaging.

2. The widespread belief that the left side of the brain deals with language and analytical thought, while the right hemisphere deals with creativity and spatial relations:
   a) is a vast oversimplification.
   b) is based on Roger Sperry’s studies on patients who have a severed corpus callosum.
   c) was not strongly supported by the results from the Brain Asymmetry CogLab.
   d) all of the above.

3. The parietal lobe:
   a) receives information from the eye.
   b) is the largest part of the cortex.
   c) contains the primary sensory area.
   d) is primarily associated with memory and attention.

4. fMRI:
   a) measures electrical activity produced by the brain via electrodes placed on the scalp.
   b) shows only the structure of soft tissue.
   c) differentiates between active and inactive neurons via the concentration of oxygen.
   d) gives an anatomical map of how information can travel in the brain.
5. Suppose you are conducting a study. You want to measure how brain activity changes in real time as a person reads the last word in a sentence. You have participants read two types of sentences: one type makes sense, e.g., “He put on his nice warm socks.”, while the second type has an incongruent last word, e.g., “She spread the warm bagel with hats.” Given the purpose of your study, which technique would you use to measure the brain activity of a participant?
   a) EEG.
   b) MRI.
   c) fMRI.
   d) PET.

6. An fMRI study had two conditions: participants either watched a video or stared at a blank screen. The article reporting the results of the study includes an image of a brain that is largely in grayscale except for some colored regions. These colored regions:
   a) provide information about the exact time that the brain is active while a person watches videos.
   b) provide information about the exact location in the brain that is active while a person watches videos.
   c) indicate places in the brain that are statistically different between the video watching condition and blank screen condition.
   d) both (a) and (b).

7. In the resulting images from an fMRI study, the more intense the color is,
   a) the higher the brain activity is in the corresponding area.
   b) the better the subject is at performing the task.
   c) both (a) and (b).
   d) none of the above.

8. Suppose you want to conduct an fMRI study on patients with ALS. ALS causes muscle weakness and muscle spasms due to degeneration of motor neurons. A problem you may have with conducting such a study is:
   a) performing an adequate statistical analysis of the data.
   b) difficulty in comparing the results across subjects due to anatomical differences.
   c) blurring of images.
   d) all of the above.

9. A neuron:
   a) may be active at a given time, and an fMRI can show if a particular neuron is active.
   b) is characterized by a particular shape, and all neurons have the same shape.
   c) has dendrites, which receive action potentials.
   d) has a soma, which conducts action potentials to another neuron.
10. If the output of a neuron (call it neuron 1) is inhibitory on the neuron it reaches (neuron 2), then:
   a) when neuron 1 sends an output, neuron 2 produces an action potential.
   b) when neuron 1 sends an output, neuron 2 is more likely to produce an action potential.
   c) when neuron 1 sends an output, neuron 2 is less likely to produce an action potential.
   d) when neuron 1 sends an output, neuron 2 does not produce an action potential.

11. The resting potential of a neuron is characterized by:
   a) the sending of an action potential.
   b) a value of around +70mV.
   c) having relatively more sodium ions outside of it, and more potassium ions inside of it.
   d) depolarization.

12. Prozac is used to treat some forms of depression that are correlated with deficiencies of the neurotransmitter serotonin. Prozac is:
   a) a reuptake inhibitor: it keeps serotonin bound to a receptor for longer than normal.
   b) a replacement: it is accepted by the same receptors as serotonin and has a similar effect.
   c) a blocker: it partly closes the receptor so that serotonin cannot enter it.
   d) a competitor: it competes with serotonin for binding to the receptor.

13. Why don’t we usually notice our blind spot?
   a) We typically don’t notice the absence of information.
   b) The brain fills it in, making an inference based on the information around it.
   c) As we get older, receptors in the eye shift and largely fill in the gap in our receptive field that causes the blind spot.
   d) both (a) and (b).

14. The receptive field of an on-center, off-surround cell is:
   a) any place on the retina where light excites the cell.
   b) any place on the retina where light inhibits the cell.
   c) centered at a particular location.
   d) all of the above.

15. The definition of a neuron’s receptive field is:
   a) the synapses that feed into a neuron.
   b) the excitatory synapses that feed into a neuron.
   c) the stimuli that excite a neuron.
   d) the stimuli that change a neuron’s firing rate.
16. In a neural network that is in a state of resonance,
   a) the firing rates of the network’s cells have largely stopped changing.
   b) the active cells excite the inactive cells.
   c) there cannot be any active cells.
   d) the active cells establish the expectation of the network.

17. Suppose neurons A, B, D, E, P, S, and Y are active in a neural network similar to the kind we demonstrated in class. If the neuron representing the letter “C” is inhibited by neurons A, B, D, E yet excited by P, S, Y, then “C”:
   a) becomes active.
   b) remains inactive.
   c) is resonant.
   d) must be removed and, thus, shows how the network can tolerate cell loss.

18. Each individual cell in a neural network:
   a) has error correction capabilities.
   b) is stupid.
   c) is required for the network to function.
   d) has a weight.

19. A neural network that obeys Hebb’s rule:
   a) lacks the ability to self-organize.
   b) can remember stimuli that it experienced in the past.
   c) strengthens connections between two simultaneously inhibited neurons.
   d) does not change in response to environmental signals.

20. The results of the Implicit Learning Coglab:
   a) suggest that you can learn a pattern even though you aren’t consciously aware of learning it.
   b) indicate you can report the pattern that you learned.
   c) imply that the group exposed to randomly located stimuli learned a pattern because synapses in their brains changed.
   d) illustrate that the brain can become overloaded in the random condition.
21. Suppose you participate in an experiment in which you must wear goggles with lenses that make everything appear upside down. For 5 months, you wear these goggles all of the time. After 5 months, you take the goggles off. It is likely that:
   a) your hand-eye coordination will be off permanently, e.g., when someone offers to shake your hand, you henceforth will always extend your hand initially upwards towards his face.
   b) your hand-eye coordination will be off temporarily.
   c) your hand-eye coordination after wearing the goggles for 5 months is the same as it was prior to wearing the goggles.
   d) none of the above.

22. We plotted the results of the Muller-Lyer illusion as a psychometric function, which:
   a) plots the proportion of stimuli discriminated along the y-axis, i.e., the proportion of times the wingless line is judged as longer.
   b) plots a property of the stimuli along the x-axis, i.e., length of line without wings (in pixels).
   c) allows us to describe a perceptual experience in terms of physical units, i.e., pixels.
   d) all of the above.

23. We see spots at the corners of a white Hermann grid on a black background because the on-center, off-surround cells that are at intersections have:
   a) more inhibition than cells in the middle of a street.
   b) less inhibition than cells in the middle of a street.
   c) more excitation than cells in the middle of a street.
   d) less excitation than cells in the middle of a street.

24. Gated dipole circuits can explain:
   a) color and orientation afterimages.
   b) motion aftereffects.
   c) attentional blink.
   d) both (a) and (b).

25. In an experiment by Bowen, Pola and Matin (1973), participants were asked to adjust the duration of the interstimulus interval between a target and a subsequently presented probe until:
   a) the probe masked the target.
   b) the luminance of the probe appeared to increase.
   c) the offset of the probe appeared to match the offset of the target.
   d) the onset of the probe appeared to match the offset of the target.
26. A metacontrast mask:
   a) spatially overlaps the target.
   b) does not overlap the target.
   c) temporally overlaps the target, i.e., the mask appears while the target is still present.
   d) both (a) and (c).

27. A Reichardt motion detector:
   a) requires continuous motion to detect motion.
   b) requires a signal from each of two pathways in order to respond.
   c) does not depend on stimulus duration, interstimulus interval, or distance.
   d) both (a) and (b).

28. Recall the television remote control described in class. Pressing the “+” button caused the menu to scroll up one line, which corresponded to a channel with a lower number. A branch of applied cognitive psychology which could lead to improved remote control design is called:
   a) anthropologistics.
   b) phenomenological design.
   c) biopsychology.
   d) human factors.

29. The Simon effect:
   a) shows that participants can successfully ignore target location and focus on target color only.
   b) is an example in which attention is focused by the environment.
   c) is an example in which attention is focused by meaningful stimuli.
   d) showed that people tend to respond faster when identifying color for incongruent conditions.

30. Tse’s (2005) attention illusion:
   a) is a counterexample to the intuition that attended information feels “stronger”.
   b) demonstrates how attention can change the apparent darkness of a circle.
   c) is exceptional because attending to a stimulus does not typically change perceptual experience for a stimulus.
   d) both (b) and (c).
31. The Attentional Blink CogLab features a set of letters shown in rapid succession. Your task was to report whether you saw one, both, or neither of two target letters. The main result of this experiment is:
   a) eyelid blinking can interfere with accurate identification of target letters.
   b) accurate identification of the first target letter is low if it quickly follows the second target letter.
   c) reaction time for the first target letter tends to be lower than the reaction time for the second target letter.
   d) accurate identification of the second target letter is low if it quickly follows the first target letter.

32. In the visual search experiment, a conjunctive target absent search tends to have a slope twice that of a conjunctive target present search as a function of the number of distractors. This is largely because the search process is:
   a) parallel.
   b) self-terminating parallel.
   c) self-terminating serial.
   d) exhaustive serial.

33. The Stroop effect is due to:
   a) colored letters tending to have a pop-out effect.
   b) ink color naming requiring less attention than word naming.
   c) ink color naming interfering with word naming.
   d) word naming, unlike ink color naming, being generally an automatized task.

34. As demonstrated in the Partial Report CogLab, Sperling (1960) used a 3x3 matrix of random letters to:
   a) show that our perceptual span is around 4.5 items.
   b) measure how much information is available during a single glance.
   c) show that infant iconic memory is similar to that of adults.
   d) both (a) and (b).

35. Compared to iconic memory, echoic memory:
   a) has a larger capacity.
   b) has a longer duration.
   c) cannot be affected by masking.
   d) both (b) and (e).
36. A list of items presented auditorily shows recency in an immediate serial recall task, while it shows no recency if the list is presented visually. This phenomenon is known as:
   a) partial reporting.
   b) the suffix effect.
   c) the proposition effect.
   d) the modality effect.

37. Ebbinghaus studied which type of memory and used what type of stimuli?
   a) Long-term memory; digit trigrams
   b) Long-term memory; nonsense syllables
   c) Short-term memory; digit trigrams
   d) Short-term memory; nonsense syllables

38. According to the Modal Model of Memory (Atkinson & Shiffrin, 1968), information from the environment must pass through which of the following before being stored in long-term memory?
   a) Sensory registers
   b) Short-term store
   c) Both (a) and (b)
   d) None of the above

39. In free recall, which feature(s) of the serial position curve is considered to be the result of using short-term memory?
   a) Frequency
   b) Primacy
   c) Recency
   d) Both (b) and (c)

40. What was the measured independent variable in the Sternberg Search CogLab?
   a) Accuracy
   b) Memory set size
   c) Reaction time
   d) Trial type (feature vs. conjunction)

41. Imagine that Sternberg observed that: reaction time increased as memory set size increased, and there was no difference in reaction time between yes and no responses. Which memory search type would this be evidence of?
   a) Self-terminating parallel
   b) Exhaustive parallel
   c) Self-terminating serial
   d) Exhaustive serial
42. In Brooks’ experiment, which type of response led to faster responses for the diagram and sentence tasks, respectively?
   a) Pointing; verbal
   b) Pointing; pointing
   c) Verbal; pointing
   d) Verbal; verbal

43. Which of the following affects a person’s memory span?
   a) The size of phonological loop
   b) The speed of decay from the phonological store
   c) Rehearsal rate of central executive
   d) Both (b) and (c)

44. What causes the phonological similarity effect?
   a) Similar sounding items fade from the phonological store more quickly
   b) Similar sounding items fade from the phonological store more slowly
   c) Similar sounding items are harder for the articulatory control process to rehearse
   d) Similar sounding items are easier for the articulatory control process to rehearse

45. Imagine you are studying for an exam. Based on the irrelevant speech effect, which of the following would most interfere with your studies?
   a) Instrumental music
   b) Silence
   c) Words in a foreign language
   d) None of the above

46. According to the encoding specificity principle, memory is determined by what?
   a) Depth of processing during encoding
   b) Encoding context
   c) Match between the conditions at encoding and retrieval
   d) Study style

47. The encoding specificity principle suggests that:
   a) Some learning strategies are better than others
   b) Some testing contexts are better than others
   c) Forgetting must be operationally defined
   d) Both (b) and (c)
48. In the Encoding Specificity CogLab, which conditions tended to (on average) produce the best memory?
   a) Words studied with strong cues
   b) Words tested with weak cues
   c) Words studied with strong cues and tested with weak cues
   d) Words studied with weak cues and tested with weak cues

49. Within each list presented during a trial of the False Memory CogLab, all the words were directly related to:
   a) All the other presented words
   b) All the unpresented words
   c) One of the presented words
   d) One of the unpresented words

50. Imagine you parked in different spots in the same parking lot for seven days in a row. On the seventh day I ask you, “Which spot did you park in on the third day?” What type of interference would affect your ability to recall this information?
   a) Only proactive
   b) Only retroactive
   c) Both proactive and retroactive
   d) Neither proactive nor retroactive

51. Which of the following is an example of retroactive interference?
   a) The counting backwards task in the Brown-Peterson experiment.
   b) Green squares and blue circles when searching for a green circle in a visual search experiment
   c) The modality effect in immediate serial recall.
   d) The rotation angle in a mental rotation experiment.

52. Compared to ordinary memories flashbulb memories:
   a) Are more accurate
   b) Are less vivid
   c) Decrease in accuracy over time
   d) Don’t decrease in vividness over time

53. In Loftus, Miller and Burns’ (1978) experiment, how did the misinformation effect change after a week delay?
   a) It got stronger
   b) It got weaker
   c) It remained the same
   d) It disappeared
54. Which of the following is **not** true of memories?
   a) They are like a tape recorder
   b) They can be manipulated
   c) They can be accurate
   d) They are constructed

55. Which of the following is true of patients with anterograde amnesia?
   a) They cannot learn new information
   b) They cannot remember events prior to their injury
   c) They do not remember learning new information
   d) Both (a) and (c)

56. Imagine you have sustained a head injury and wake up in the hospital with no memory for events from your life prior to the injury. This would be described as what type of amnesia?
   a) Anterograde
   b) Infantile
   c) Retrograde
   d) Repressive

57. Serial position curves for anterograde amnesic patents tend to show what?
   a) Abnormal primacy and abnormal recency
   b) Abnormal primacy and normal recency
   c) Normal primacy and abnormal recency
   d) Normal primacy and normal recency

58. Imagine that you were not told where this exam (the final) would take place until the day of the exam. You plan to study over the course of several days. Given the results reported by Smith et al. (1978), where should you spend the prior week studying for the final?
   a) In the same classroom as the lectures
   b) In the quietest room in your house
   c) In any classroom as long as it is the same every time you study
   d) In several different locations

59. Why is spaced practice better than massed practice?
   a) Spacing gives your memories more time to be consolidated
   b) Spacing allows the memories to be transferred to long-term memory
   c) Spacing leads to multiple temporal contexts
   d) Spacing produces stronger memories
60. Imagine you are using flashcards to study for an exam. You have a limited amount of time to study, but you want to get an A on the exam. Doing which of the following while learning the flashcards will help you maximize test performance while minimizing time spent studying?

a) Study and test yourself on all the flashcards
b) Study only the ones you haven’t correctly recalled, and test yourself on all the flashcards
c) Study all the flashcards, but only test yourself on the ones you haven’t correctly recalled
d) Stop studying the ones you have correctly recalled, but study and test yourself on all the remaining flashcards

61. Which of the following mnemonic techniques is often used to learn foreign language vocabulary?

a) Grouping
b) Link word
c) Method of Loci
d) Peg word

62. Contrary to claims made by some companies, brain training seems to improve:

a) Attention, perception, and fluid intelligence
b) Performance on only the trained task
c) Performance on both trained and untrained tasks
d) None of the above

63. Ellenbogen et al. (2007) showed that, compared to participants who did not sleep in between the learning and testing phases, participants who had slept in between the learning and the testing phase had:

a) Better memory for studied pairs
b) Better memory for new pairs
c) Worse memory for new pairs
d) Both (a) and (b)

64. Consider the concept of pizza. An advantage of exemplar theory over prototype theory is that, unlike the pizza prototype, the exemplar of pizza:

a) allows an object to be more pizza-like than others.
b) can account for pizza size variability.
c) does not rely on a strict definition.
d) all of the above.
65. During the training phase of the Prototype CogLab, which is based on an experiment by Posner and Keele (1968), you were presented with dot patterns and asked to classify each pattern as either A or B. According to Posner and Keele, your reaction time was generally faster during the test phase when you were asked to classify:
   a) variants of prototype A or B, because you had only seen variants of the prototypes during training.
   b) prototype A or prototype B, because you had seen the prototypes during training.
   c) prototype A or prototype B, because you learned these patterns during training.
   d) both (b) and (c).

66. In a network representation of a proposition,
   a) each oval in the network corresponds to a concept.
   b) each link in the network represents a proposition.
   c) a label on a link names a concept.
   d) the representation does not indicate relations between concepts.

67. In a study by Kosslyn (1976), subjects were divided into two groups: Group 1 was instructed to form a mental image of a lion, and Group 2 was instructed to think about a lion yet not form a mental image. Which group tended to respond more quickly to the question: Does a lion have claws?
   a) Group 1.
   b) Group 2.
   c) Both groups had roughly the same average reaction time.
   d) This experiment did not measure reaction time.

68. During a demo in class, you were asked some geography questions, e.g., “Is San Diego west of Reno?”. Since you had no map in front of you, you had to answer based on your mental representation of a map of the U.S. The demonstration suggested that:
   a) mental images are exactly like real images.
   b) mental images do not involve any propositions.
   c) propositional information may have influenced your response.
   d) mental images are just propositions.

69. During a trial of the Mental Rotation Coglab, you were shown two 3D block shapes. Both shapes were shown simultaneously, with one on the left side of the screen, and the other on the right. Your task was to:
   a) report how many degrees one shape appears to be rotated around the vertical axis relative to the other shape.
   b) report whether the two shapes are the same or different as quickly as possible.
   c) report whether the two shapes are the same or different as accurately as possible, without regard to the speed of response.
   d) mentally rotate one object such as to match the target object, and report how vivid the mentally rotated ths object is compared with target object.
70. Which of the following is true of a pidgin?
   a) It follows rules
   b) It doesn’t require context to be understood
   c) It is not a language
   d) It doesn’t have arbitrary word ordering

71. Which of the following is true of a language?
   a) It is learned in school
   b) It is learned almost exclusively through imitation
   c) It follows rules
   d) Both (b) and (c)

72. Simon was a deaf boy who was raised by parents who had learned American Sign Language late in life. How did his sign language abilities compare to those of his parents?
   a) His signing was better
   b) His signing was as good his parents’ signing
   c) His signing was worse than that of his parents
   d) Some of his signing was better than that of his parents, but other parts were worse

73. Which of the following can be used as evidence to support the idea that learning language is not about learning statistical regularities?
   a) Long-term dependencies
   b) Recursion
   c) Words are symbols
   d) Both (a) and (b)

74. In Star Wars, Yoda says phrases like “powerful you have become, the dark side I sense in you”. These types of phrases:
   a) Are not grammatically correct
   b) Are nonsense sentences
   c) Cannot be understood
   d) Are examples of long-term dependency

75. What are the two key aspects of language?
   a) Words and phrases
   b) Words and symbols
   c) Symbols and grammar
   d) Rules and phrase trees
76. In the Lexical Decision Coglab participants had to decide if the stimuli were:
   a) Words or nonwords
   b) The same or different
   c) Present or absent
   d) Old or new

77. For English compound nouns, which part is used to determine how it will be pluralized?
   a) The root
   b) The head
   c) The left-most morpheme
   d) The stem

78. What is a root?
   a) A word than cannot be split into smaller parts
   b) The right-most noun in a compound noun
   c) The smallest unit of language that carries meaning
   d) A morpheme that makes a noun an adjective

79. If participants listening to a sentence perform a lexical decision task just after hearing an ambiguous word, they will respond faster to:
   a) Words that are related only to the used definition of the ambiguous word
   b) Words that are related to only the unused definition of the ambiguous word
   c) Words that are related to either definition of the ambiguous word
   d) Words that are unrelated to either definition of the ambiguous word

80. What role do schemas play in language comprehension?
   a) They remove ambiguity
   b) They simplify sentence structure
   c) They expose ambiguities
   d) They help interpret grammatically correct but complicated sentences

81. We do not have rich/deep conversations with computers because computer programs (e.g., Eliza):
   a) lack required contextual information
   b) do not know how to interpret ambiguous sentences
   c) don’t understand complex grammar rules
   d) all of the above
82. Why does computer speech sound different than human speech?
   a) Computers use more phonemes per second than humans
   b) Computers combine phonemes differently than humans
   c) Computers separate syllables differently than humans
   d) All of the above

83. Consonants can be described by each of the following except:
   a) place of articulation
   b) voicing
   c) manner of articulation
   d) rate of pronunciations

84. Which of the following is related to why English spelling does not agree with pronunciation?
   a) Coarticulation
   b) Children follow most of the rules most of the time
   c) Phonemes are defined by three variables
   d) Language involves both grammar and words

85. Which of the following is not true of infants?
   a) They hear all phonemes
   b) They have no preference for one language over another
   c) They prefer speech with melody
   d) They are uninterested in recorded speech played backwards

86. Imagine you have a four-year old niece. Which of the following language errors would she be unlikely to make?
   a) “The leafs fell on the ground.”
   b) “I finded you.”
   c) “I sitted on the chair.”
   d) “Does he be smiling?”

87. Why is it difficult to become fluent in a second language as an adult?
   a) There is a critical period for language
   b) As an adult, you can only hear the phonemes from your native language
   c) There is not enough space in memory for new words
   d) Both (a) and (b)
88. Patients with Wernicke’s aphasia often:
   a) may say sentences with omitted ends, e.g., “Wife is dry dishes.”
   b) say sentences that may include nonsense words. e.g., “trebbin”.
   c) struggle to say words.
   d) seem to know what they want to say.

89. Damage around Wernicke’s area:
   a) can produce a deficit in the ability to name things.
   b) may result in anomia.
   c) occurs in the left hemisphere.
   d) all of the above.

90. Several research groups in the 1960s attempted to teach chimps American Sign Language (ASL). However, chimps were not able to understand complex ASL signs and sentences. It also true that:
   a) chimps did learn the ASL grammar rules well.
   b) some chimps, like patients with Broca’s aphasia, seemed able to guess the meanings of some complex sentences based on their understanding of a few words in them.
   c) this provides strong evidence against the claim that language evolved in humans.
   d) researchers at the time were quick to point out that the mistakes that chimps made were, indeed, mistakes, rather than jokes or metaphors.

91. A problem that Cartesian dualism faces is:
   a) the Turing test.
   b) accounting for how a material substance (the body) interacts with an immaterial substance (the mind).
   c) artificial intelligence.
   d) the Chinese room problem.

92. Given that information processing is distributed in the brain, it is likely that:
   a) each brain area knows the same thing at a particular time.
   b) consciousness occurs at a single place.
   c) knowledge occurs at a single moment.
   d) consciousness does not occur at a single moment.
93. The Chinese room thought experiment is supposed to support the claim that passing a Turing test does not necessarily indicate that a computer is intelligent. In this thought experiment, a Chinese character is input into the room via a slot. In the room there is an English-speaking person with a book. The book:
   a) is a dictionary, which provides an English translation of Chinese characters.
   b) gives rules that indicate which Chinese character should be output given a particular input Chinese character.
   c) does not contain several of the characters that may be input.
   d) both (a) and (b).

94. In the Monty Hall CogLab, you are shown three doors and there is a prize behind one door. After one door has been opened, what is the best strategy to follow when making your second choice?
   a) Always switch doors
   b) Always stay with the same door
   c) Always pick the left door
   d) None of the above (there is a 50% chance of being correct, so it doesn’t matter)

95. Suppose you are in a child custody hearing. The judge asks you to award the child to one parent rather than to deny the child to one parent. What kind of decision making bias should you be worried about?
   a) The judge’s instructions bias people to focus on negative characteristic
   b) The judge’s instructions bias people to focus on positive characteristics
   c) The judge’s instructions bias people to pick the less risky option
   d) The judge’s instructions bias people to pick the more risky option

96. Imagine that you and your friend are watching a hockey game and are rooting for different teams. You complain that the referees seem to be unfairly biased against your team, but your friend argues that they are instead biased against her team. What principle of decision making explains the discrepancy between your opinion and your friend’s opinion?
   a) Framing effect
   b) Risk aversion
   c) Risk seeking
   d) Loss aversion

97. In the Wason Selection task, people are usually better at making correct choices if:
   a) The rule relates to a theme
   b) There are fewer choices
   c) The choices have pictures
   d) The rule is abstract
98. In an experiment by Chase and Simon (1973), chess pieces were randomly placed on a chess board and then removed. Memory for the chess pieces locations was:
   a) Better for beginners than masters
   b) Better for masters than beginners
   c) The same for masters and beginners
   d) Better for masters if the pieces were positioned as in the middle of a real game of chess

99. In the study by Chi, Feltovich and Glaser (1981), second year physics students (novices) tended to classify physics problems by:
   a) the main principle or equation used to compute the answer.
   b) surface similarities.
   c) how to solve the problem.
   d) both (a) and (b).

100. Metcalf (1986) conducted a study in which participants solved problems like the “Tree planting” problem. During the experiment, participants gave a warmth rating, which:
   a) was indicative of whether the participant had an “aha” feeling.
   b) corresponded with whether the participant had formulated a correct solution.
   c) was a measure of the participant’s judgement of how close she was to finding a solution.
   d) both (a) and (c).