Please provide the best answer (only one!) for each of the questions below. All questions have equal weight.

1. A person with a paralysis of the left side of the body as a result of a stroke and who doesn’t admit he has a problem has
   a. denial issues
   b. Anosagnosia
   c. Aphasia
   d. Prosopagnosia

2. Which of the following kinds of memory describes long-term, factual memory, and general world knowledge?
   a. Episodic memory
   b. Semantic memory
   c. Procedural memory
   d. Duration memory

3. According to Dr. Boyle, extracellular fluid contains high levels of NaCl because:
   a. NaCl is a byproduct of respiration
   b. NaCl facilitates waste transport out of the cell
   c. Our ancestors came from the sea
   d. All of the above

4. What evidence was given that the "mirror neuron system" is dysfunctional in autistics?
   a. Autistics show more Mu suppression when observing the actions of others than normal control subjects
   b. Autistics show less Mu suppression when observing the actions of others than normal control subjects
   c. Autistics show more Mu suppression to emotional faces than do normal control subjects
   d. Autistics show more Mu suppression to their own actions than do normal control subjects

5. What is(are) the main ion(s) responsible for the depolarization part of an AP
   a. NA+
   b. K+
   c. Cl-
   d. NA+ and K+
6. The core components that underlie post traumatic stress syndrome are likely to be:
   a. The hippocampus, which is involved in learning and memory, and the amgydala, which is involved in emotion; the two are adjacent.
   b. The hippocampus, which is involved in emotion, and prefrontal cortex; the two are adjacent.
   c. The hippocampus, which is involved in emotion, and the amgydala, which is involved in learning and memory; the two are adjacent.
   d. The hippocampus, which is involved in learning and memory, and prefrontal cortex; the two are adjacent.

7. In Dr. Sejonowski’s lecture, we were shown experimental data showing the scan paths of subjects looking at a painting *The Visitor*. What was the major outcome of this experiment?
   a. Subjects exhibit *change blindness*.
   b. More neurons respond in a scan path when a *reward* is presented.
   c. Subjects can show great *diversity* in how they attend to stimuli.
   d. Scan paths vary greatly depending on the task a subject is asked to do.

8. The influx of which of the following ions is responsible for the sharp increase in cell potential triggered by the action potential?
   a. Sodium
   b. Potassium
   c. Chlorine
   d. Calcium

9. In the brain, lateralization refers two
   a. The two hemispheres being connected by the corpus callosum
   b. The right and left hemispheres of the brain control opposite sides of the body
   c. Some cognitive abilities being specialized to one hemisphere
   d. The two hemispheres being symmetrical to each other

10. Which of the following is true of an action potential?
    a. An action potential is all or nothing.
    b. An action potential is smaller in the middle of a bit of axon covered with myelin.
    c. The same amount of stimulation may generate an action potential, but under some conditions may not.
    d. All of the above are true.

11. Pick the right relationship of an ion and the electrochemical forces pushing or pulling it in/out of a typical neuron.
    a. Na+: electric force pushes it out, chemical pulls it in
    b. Cl−: electric force pulls it in, chemical pulls it in
    c. K+: electrical pulls it in, chemical pushes it out.
    d. Na+: electric force pulls it in, chemical pushes it out.
12. What brain area is most attributed to being involved in declarative memories?
   a. Amygdala
   b. Prefrontal cortex
   c. Hippocampus
   d. Temporal cortex

13. Mirror Neurons are significant in …
   a. Mimickry
   b. Empathy
   c. Learning how to surf
   d. All of the above

14. When imaging a psychopath patient’s brain
   a. They have abnormal function in their amygdala
   b. They have abnormal function in their prefrontal cortex
   c. They have abnormal function in their hippocampus
   d. They have abnormal function in their thalamus

15. At resting potential:
   a. A neuron has a positive charge in relation to the surrounding area
   b. A neuron’s axon has a positive charge in relation to its dendrites
   c. A neuron has a negative charge in relation to the surrounding area
   d. A neuron has the same charge as the surrounding area

16. Dr. Chiba pointed out that as a result of current research on PTSD:
   a. New ideas for treating the disorder have been suggested that relate not only to regulating the amygdala but also the neocortex
   b. It has been found that rats with a larger frontal cortex extinguish fear response more quickly
   c. It has been found that there are two main categories of stress disorders that originate from the different types of military combat
   d. Researchers are recommending more powerful drugs for regulation of the amygdala

17. Damage to the Arcuate Fasciculus results in
   a. Broca’s aphasia
   b. Retrograde amnesia
   c. Conduction aphasia
   d. Anterograde amnesia or maybe hemispatial neglect or something

18. By suppressing the neurons normally responsible for the mu rhythm:
   a. It is possible to unlearn autistic behavior
   b. Behavior is observed that is similar to autism
   c. Autistic children can see improvement, but adults need other types of stimulus
   d. Monkeys respond to watching an action the same way as if they were carrying out the action
19. Which of the following biochemical actions can NOT open an ion channel?
   a. The binding of a neurotransmitter to an ionotropic receptor
   b. The membrane potential reaching the action potential
   c. A G protein passing a chemical signal
   d. A vesicle passing through the myelin sheath

20. In the article “The Mirror-Neuron System,” what functions do the authors suggest mirror neurons are involved in?
   a. Making sense of the behavior of others.
   b. Imitation learning.
   c. Understanding social organization.
   d. All of the above

21. According to the theory of "pure vision," what is the goal of the visual system?
   a. To guide the body to achieving goals
   b. To predict what the eyes will see next
   c. To construct a complete representation of everything one can currently see
   d. To quickly categorize objects and judge distances

22. Which of the following graphical profiles matches the distribution of ganglion cells in the retina?

   a)  
   b)  
   c)  
   d)  

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23. What is a Wada test?
   a. A test to determine right or left-handedness
   b. A test to determine if a person has Broca’s or Wernicke’s aphasia
   c. A test to determine where a person’s brain represents the left visual field
   d. None of the above

24. The “grandma theory”
   a. Says that our loving grandmothers can teach us all we need to know
   b. Is an example of pure top down processing
   c. Is an example of pure bottom up processing
   d. Says that emotional stimuli excites visual neurons more than non-emotional stimuli

25. Which of the following is true of the 1798 localizationist view of the brain?
   a. It stood in opposition to phrenology
   b. Behaviors and traits could be attributed to specific brain regions
   c. It was refuted by the localization of Broca’s aphasia in 1861
   d. It was confirmed by the localization of mirror neurons in 1995

26. Which part of the brain is critical for animals to extinguish a fear response?
   a. Basal ganglia.
   b. Amygdala.
   c. Prefrontal Cortex.
   d. Ventral tegmental area.

27. Hubel and Weisel did experiments on cells in visual cortex V1. Evaluate the following statements below and determine which of them describe some of the findings of Hubel and Weisel.
   I. These cells exhibit receptive fields that respond to stimuli in bars at a particular orientation
   II. These cells exhibit receptive fields that respond to stimuli more strongly than in the foveal region
   III. These cells help the brain represent outlines
   a. I only
   b. II and III
   c. I and II
   d. I and III
28. Based on Dr. Sejnowski’s lecture, which of the following statements is accurate regarding temporal difference learning?
   a. If there is NO expectation for a reward, firing rate increases when a reward is received.
   b. If there is NO expectation for a reward, firing rate decreases when a reward is received.
   c. If there is an expectation for a reward, firing rate decreases when a reward is received.
   d. If there is an expectation for a reward, firing rate increases when NO reward is received.

29. According to the reading assignment “Conversations with Neil’s brain”, several decades ago the neurologist Norman Geschwind observed that the *planum temporale* was larger on the right side in some people. What apes DO NOT have this symmetry?
   a. Gorillas
   b. Orangutans
   c. Bonobos
   d. Chimpanzees

30. Extinction of fear memories is thought to involve:
   a. Inhibition of the fear circuitry by the amygdala
   b. Inhibition of the fear circuitry by the prefrontal cortex
   c. Paring of cortical structures in the hippocampus
   d. Neuronal unlearning in the amygdala responsible for a particular fear pathway

31. In an EEG, what is seen when a person watches the action of another?
   a. A widening of the Mu response
   b. Mu enhancement
   c. Mirror neuron activity
   d. Mu suppression

32. Which of the following describes characteristics of the foveal region of the retina?
   a. Contains many ganglion cells, with small receptive fields
   b. Contains many ganglion cells, with large receptive fields
   c. Contains fewer ganglion cells, with small receptive fields
   d. Contains fewer ganglion cells, with large receptive fields

33. Based on Dr. Stiles’s lecture, what might the patient HM have trouble learning?
   a. The capitals of the United States
   b. Playing the piano
   c. What he ate for breakfast yesterday
   d. a and c
34. Regarding the reading assignment “The Lost Mariner”, how far back went the patient’s retrograde amnesia?
   a. Consistently to 1945
   b. A few years before he got hurt
   c. To the moment he got hurt
   d. He actually had ‘Korsakov’s Syndrome’, which only consists of anterograde amnesia

35. What are you likely to find in an adult who suffered massive damage to left inferior frontal areas during birth?
   a. Broca’s aphasia.
   b. Wernicke’s aphasia.
   c. Retrograde amnesia.
   d. None of the above

36. The following statement describes a patient. Diagnose this patient with a memory disorder.
   “This patient had severe head trauma at age 27. After this episode, he could not remember specific events from his past, but was able to function relatively normally, i.e. his procedural memory was in tact. He can carry on an excellent, short term conversation, and can learn new skills at a normal rate, and retains these skills over long periods of time.”
   a. This patient may have retrograde amnesia
   b. This patient may have associative amnesia
   c. This patient may have anterograde amnesia
   d. This patient may have episodic amnesia

37. Hemineglect is characterized by:
   a. Failure to produce speech due to unilateral left hemisphere lesion
   b. Failure to report or orient to stimuli on the left side of the body due to a right parietal lesion
   c. Neglect hemo-responses due to unilateral occipital lesion
   d. Failure to report or orient to stimuli on the left side of the body due to a right occipital lesion

38. Broca’s aphasics have difficulty _______, while Wernicke’s aphasics have difficulty______:
   a. Producing speech; Dressing themselves
   b. Comprehending speech; Producing speech
   c. Producing speech; Comprehending speech
   d. Dressing themselves; Producing speech
39. The mu rhythm is
   a. present when a person is active and not watching anything
   b. present when a person is simulating a motion
   c. overactive in autistics
   d. none of the above.

40. AB In the context of Dr. Chiba’s lecture, what does the following statement mean?
   “The brain is in no way obligated to function according to the psychological principles we impose on it.”
   a. Emotional and psychological self-regulation is directed by the “power-couple” of the amygdala and prefrontal cortex
   b. Psychology has created ways of understanding human behavior that may or may not have exact neuroanatomical correlates
   c. People are governed by reason are “philosopher kings,” and people governed by emotion are “warriors”
   d. It is impossible to know exactly how emotion and human psychology operate in the brain, because the brain is far too complex

41. The lateral nucleus of the Amygdala has neurons whose firing rate ______ during learning of a fearful association, and ______ during extinction of a fearful association.
   a. Increases, decreases
   b. Increases, stays the same
   c. Decreases, increases
   d. Stays the same, decreases

42. Monkey mirror neurons are thought to respond to which of the following events?
   a. All self-performed actions.
   b. All observed actions.
   c. All goal-directed actions, both self-performed and observed.
   d. All actions, both self-performed and observed.