Review Questions for Chapter 1:
Studying the Nervous Systems of Humans and Other Animals

1. Diagram a neuron and label its components. In what ways are neurons specialized for communication? Do these specializations distinguish neurons from other types of cells?

2. What did Golgi and Cajal disagree about?

3. What are the main types of glial cells, and what is the main function of each? If the brain has more glia than neurons, why do neurons get so much more attention?

4. Diagram the myotatic (knee-jerk) spinal reflex, showing the afferent and efferent neurons and the interneuron (local circuit neuron).

5. Draw a surface view of the human cerebral hemispheres. Label the central sulcus, lateral fissure, pre- and postcentral gyrus, and the four lobes.

6. Name some of the principal structures belonging to (a) the brainstem and (b) the forebrain.

7. Other terms to know:
   neuropil, nucleus, ganglion, tract, commissure, gray matter, white matter
   electrophysiological recordings: extracellular, intracellular, single-cell
   action potential, receptor potential
   CNS, PNS
   dorsal, ventral, rostral, caudal, sagittal
   visceral motor system, somatic motor system
   ventricles
   cerebral hemispheres, diencephalon, midbrain, cerebellum, pons, medulla
   functional brain imaging, MRI

Review Questions for Chapter 2:
Electrical Signals of Nerve Cells

1. Draw the basic experimental setup for recording membrane potentials.

2. Draw a recording of a typical action potential. Label the axes and the key features of the action potential. Identify the underlying events for each of the following:
   rising phase
   overshoot
   peak
   falling phase
   undershoot

3. Suppose a water-filled aquarium is divided into two compartments by a membrane that is not permeable to any ions. Add KCl to one side. What happens? Is there a potential difference between the two sides? What will happen to the membrane potential if the membrane suddenly becomes selectively permeable to K^+ (but not Cl^-)? What happens if you then add NaCl to one side only?

4. What is the magnitude of a typical neuron's resting membrane potential? Why do neurons and other cells have a negative resting membrane potential?

5. What is meant by the statement that ion channels and ion pumps have complementary functions?

6. Explain the difference between action potentials (all-or-none) and synaptic potentials (graded).

7. Distinguish between hyperpolarization and depolarization.

8. What is meant by electrochemical equilibrium?

9. Write the Nernst equation. Explain how it could be used to determine the equilibrium potential for K^+. What good is it to know the K^+ equilibrium potential?

10. What situation calls for the Goldman equation instead of the Nernst equation?

11. Suppose you are recording a neuron's resting membrane potential. You add KCl to the external medium. What do you think would happen to the resting potential? Compare this to what would happen if you had added the same amount of NaCl. What could you conclude from this comparison?

Review Questions for Chapter 3:
Voltage-Dependent Membrane Permeability

1. What is the voltage clamp method? Explain how it allowed Hodgkin and Huxley to determine the contribution of Na^+ and K^+ conductances to the action potential.

2. Does current flow from positive to negative, or negative to positive? Which way does current flow across the membrane during the rising phase of the action potential? During the falling phase?

3. Suppose you are recording action potentials from a neuron. How would the action potential be affected if you remove Na^+ from the external medium? What if you remove external K^+ instead?

4. How does the voltage sensitivity of K^+ conductance contribute to the action potential?

5. Do unmyelinated axons carry action potentials? Draw a diagram to help explain the regenerative property of the action potential, using the concepts of active and passive current flow.

6. What is the purpose of myelin? Explain how myelin speeds the conduction of the action potential.

7. Why don't action potentials turn around and go back up the axon?

8. Other terms to know:
   tetrodotoxin
   saltatory conduction
   nodes of Ranvier
   membrane conductance, permeability, resistance
   multiple sclerosis

Review Questions for Chapter 4:
Channels and Transporters

1. Why did Hodgkin and Huxley surmise that neuronal membranes must have ion channels? What properties did they think ion channels would have? What properties did they not anticipate?

2. What is patch clamping useful for?

3. What makes the frog oocyte a useful expression system for studying proteins such as ion channels?

4. Compare the responses of voltage-gated Na^+ and K^+ channels to depolarization. How would you expect these channel properties to affect the shape, duration and frequency of action potentials?

5. Compare ion channels and active transporters with regard to structure and function.

6. What must all active transporters be able to do? Distinguish between the two classes of active transporters: ATPase pumps and ion exchangers. Give an example of each.

7. What experimental approaches can be used to determine which ions can pass through a particular ion channel?

8. There are nearly 100 genes for K^+ channels. Why so many? Wouldn't one or two be enough?

9. List major stimulus types that can gate (open or close) various kinds of ion channels.

10. Describe briefly how each of the following can be used to learn about ion channels:
    X-ray crystallography
    expression of mRNA in *Xenopus* oocyte
    patch clamping
    mutagenesis
    toxins

11. What do Cl^-, Ca^{2+}, N^+ and K^+ channels have in common structurally? How are they different?

12. Does the Na^+/K^+ pump make a major contribution to a neuron's resting potential? Explain.

13. Other terms to know:
    microscopic and macroscopic currents
    cyclic nucleotide gated channels
    channelopathies
    electrogenic pumps, ouabain

Review Questions for Chapter 5:
Synaptic Transmission

1. Compare the pros and cons of electrical and chemical synapses.

2. If someone challenged the existence of chemical synapses as "only a theory," how would you reply?

3. What criteria define a neurotransmitter?

4. Are synaptic vesicles delivered to the nerve terminal by slow or fast axonal transport? Explain.

5. List the steps involved in chemical neurotransmission.

6. What is the significance of the quantal nature of MEPPs? What is the evidence that EPPs are composed of MEPPS?

7. What lines of evidence suggest that neurotransmitters are released from synaptic vesicles?

8. Summarize the experimental evidence that synaptic vesicles are recycled in the axon terminal.

9. It has been demonstrated that a rise in presynaptic Ca^{2+} is necessary and sufficient for neurotransmitter release. What experimental evidence supports the claim that Ca^{2+} is necessary? sufficient?

10. Indicate how the following are involved in neurotransmitter secretion: NSF, SNAPs, SNAREs (synaptobrevin, synataxin, SNAP-25), synaptotagmin, synapsin. Which one is key in the regulation of transmitter release by Ca^{2+}?

11. Other terms to know:
    gap junction
    presynaptic, postsynaptic
    co-transmitters
    myasthenic syndromes
    botulinum toxin, tetanus toxin
    clathrin
    EPSP, IPSP, summation of PSPs
    receptors: ionotropic (ligand-gated ion channel), metabotropic (G-protein coupled)

Review Questions for Chapter 6:
Neurotransmitters and Their Receptors

1. Compare peptide and classical small-molecule neurotransmitters with regard to synthesis and removal from the synaptic cleft.

2. List the precursor(s), rate-limiting enzyme of synthesis, and mechanism(s) of removal from the synaptic cleft for the following:
   GABA
   Glutamate
   5-HT
   Ach
   DA
   NE

3. What are the main structural and functional differences between ionotropic and metabotropic receptors?

4. Give examples of neurotransmitters in each of the following categories:
   purinergic
   biogenic amine
   amino acid
   peptide

5. Is a serotonin reuptake inhibitor an agonist or an antagonist? Explain.

6. Which neurotransmitter systems are particularly associated with (a) depression, (b) anxiety, (c) pain, and (d) addiction?

7. What are the two major inhibitory neurotransmitters in the brain?

8. What is the glutamate–glutamine cycle?

9. What is excitotoxicity and why is clinically important?

10. What are the three major types of ionotropic glutamate receptors, and where did they get these names?

11. What features make nitric oxide (NO) such an unusual neurotransmitter?

12. Other terms to know:
    vesicular transporter
    catecholamines
    bungarotoxin, nicotine, muscarine, atropine, strychnine, muscimol, bicuculline
    pre-propeptide, endocannabinoid, myasthenia gravis

Review Questions for Chapter 7:
Molecular Signaling within Neurons

1. Two major second messenger systems linked to metabotropic neurotransmitter receptors are the cAMP system and the phosphoinositide system. Draw a table comparing the main steps in these second messenger systems. (Figure 7.6)

2. Why is it so important to keep Ca^{2+} levels low inside the cell, and how is this accomplished?

3. Protein kinases and phosphatases are major targets of second messenger systems. Why is it so important to regulate protein phosphorylation?

4. Define the following terms and give examples of each:
   cell signaling molecules
   receptors
   effector proteins
   second messengers
   later effectors
   heterotrimeric G-proteins
   transcription factors
   immediate early genes

5. The nervous system is known for its plasticity (modifiability), or ability to show enduring changes in response to environmental changes. This typically involves changes in gene expression. Draw a diagram illustrating how neurotransmission can lead to changes in gene expression.

6. What are some potential points of intersection between second messenger systems? With so many points of intersection, how could a neuron keep track of individual signals?

7. How do second messenger systems "turn off" again after they have been turned on?

8. Other terms to know:
   signal transduction
   chemical signaling: paracrine, endocrine, synaptic transmission
   cyclic nucleotides, cAMP, cGMP, adenylyl cyclase, guanylyl cyclase
   DAG, IP_3, PKC, PIP_2
   CaMKII, MAPK, calcineurin
   CREB, CRE, *c-fos*

Review Questions for Chapter 8:
The Somatic Sensory System

1. What are the relative merits of phasic (rapidly adapting) versus tonic (slowly adapting) receptors?

2. What is proprioception? Name three kinds of proprioceptors.

3. If you were asked to modify the somatic sensory system to improve its two-point discrimination, what changes would you suggest?

4. What is a somatosensory receptive field?

5. Where are the gracile and cuneate nuclei? What is the equivalent of the dorsal column nuclei for somatosensory input from the face?

6. Where is the primary somatic sensory cortex (SI)? Are there differences between the four Brodmann's areas that comprise SI?

7. What are some afferent and efferent connections of SI?

8. Compare the dorsal column (medial lemniscal) and spinothalamic (anterolateral) pathways with respect to anatomy and sensory modality. For each pathway, where are the cell bodies and axon terminals of the first-, second- and third-order neurons? Where does each pathway decussate? Is the left side of the body represented in the right or left SI cortex?

9. The perceived somatosensory stimulus is really a highly filtered and distorted representation of the actual physical stimulus. Do you agree? Explain.

10. Other terms to know:
    cutaneous and subcutaneous mechanoreceptors
    primary sensory ending, dorsal root ganglion cell, dorsal root
    sensory transduction, receptor potential
    dermatome
    somatotopy, homunculus
    VPM, VPL

Review Questions for Chapter 9:
Pain

1. What is the evidence that nociception is mediated by specific nociceptors rather than by strongly stimulated tactile receptors or warm receptors?

2. Are hyperalgesia and allodynia beneficial? Summarize the contributions of peripheral and central sensitization.

3. Due to a spinal injury, a patient lost pain and temperature sensation on the left half of his body from the waist down. Where was his injury? Where would you expect loss of tactile sensation in this patient?

4. Give an example of referred pain and offer a possible explanation.

5. What is the recently discovered major pathway for visceral pain?

6. Is phantom limb pain less “real” than pain from an intact limb?

7. Why do chili peppers seem hot?

8. The placebo effect on pain can be blocked by naloxone. What does this observation reveal about the pain system?

9. Are there any practical applications of the gate control theory of pain?

10. Describe the neural pathway for emotional-motivation aspects of pain.

11. What are the three major groups of endogenous opioids?

12. Why, do you think, is severe chronic pain not eliminated by ablating the primary somatosensory cortex?

13. Other terms to know:
    Aδ and C fiber nociceptors
    spinothalamic tract, anterolateral system
    TRP channels, vanilloid receptors
    neuropathic pain

Review Questions for Chapter 10:
Vision: The Eye

1. Why do you have both rods and cones instead of just one type of photoreceptor?

2. Do you have more rods or cones in your retina? In your fovea? What accounts for the fact that your rods do not contribute to vision in daylight?

3. Draw a simplified diagram of the retina; label the five types of retinal neurons. Which layer is the outer nuclear layer?

4. Is the retina part of the central nervous system? Explain.

5. Photoreceptors are atypical in that they are depolarized (−40 mV) in darkness and are hyperpolarized by light stimuli. What components of photoreceptors account for this?

6. What is the evidence that color vision is trichromatic?

7. What observations led Kuffler to define two types of retinal ganglion cells, off-center and on-center? Explain how this receptive field organization is useful in detecting luminance contrast and changes in light intensity.

8. List the key steps in phototransduction in a rod, from absorption of a photon to reduction in cGMP and closure of ion channels.

9. Why is light adaptation in the retina so important, and what does it involve?

10. What is the role of horizontal cells?

11. Other terms to know:
    cornea, sclera, pupil, iris, ciliary body, pigment epithelium
    myopia, accommodation
    outer segment, plexiform layers
    cataracts, glaucoma, retinitis pigmentosa, macular degeneration
    scotopic and photopic vision

Review Questions for Chapter 11:
Central Visual Pathways

1. What percentage of the axons in your optic nerve cross at the optic chiasm?

2. Draw a sketch of the primary visual pathway.

3. The retina sends information to the dorsal lateral geniculate nucleus (dLGN) for pattern vision. Name three other targets of retinal ganglion cells and indicate what each pathway is specialized for.

4. If you lost your right visual cortex, what part of your visual field would be lost?

5. What part of the retina has the largest proportional representation?

6. Is the world mapped upside down on the retina? On V1?

7. Explain how Hubel and Wiesel mapped visual receptive fields. How do receptive field characteristics of neurons in V1 compare with those in the dLGN?

8. Are binocular neurons found in the LGN? In layer IV of primary visual cortex? Where does input from both eyes first converge?

9. What are ocular dominance columns and orientation columns?

10. What lines of evidence suggest that the magnocellular and parvocellular streams are two parallel anatomical pathways with functionally distinct characteristics?

11. Other terms to know:
    blind spot, scotoma, anopsia
    primary visual cortex = V1 = area 17 = striate cortex
    portions of the visual field: binocular, monocular, nasal, temporal
    stereopsis, near cells, far cells, autostereogram

Review Questions for Chapter 12:
The Auditory System

1. What perceptual qualities are based on frequency and amplitude of sound waves?

2. What is the audible frequency range of humans (in Hertz)? What is the approximate range for human speech sounds?

3. Describe the tonotopy of the basilar membrane.

4. List the steps in stimulus transduction, from the physical sound stimulus to the electrical signals of inner hair cells. Indicate which steps take place in the external, middle, and inner ear.

5. There are more outer hair cells than inner hair cells. What do the outer hair cells do?

6. Draw a tuning curve for a neuron in the auditory system, showing the neuron's characteristic frequency. Explain how this curve would be determined experimentally.

7. What two strategies does the auditory system use to code sound frequency?

8. Where does the auditory nerve project?

9. Compare the strategies for sound localization used by neurons in the MSO versus LSO/MNTB.

10. Briefly compare the functions of the inferior colliculus, medial geniculate complex, and primary auditory cortex. What kinds of experimental approaches are used to elucidate these functions?

11. The primary visual and somatosensory cortices have a topographic map of sensory space. Does the primary auditory cortex have a map of auditory space?

12. Other terms to know:
    pinna, auditory meatus, tympanic membrane, ossicles
    cochlea, oval window, round window
    stereocilia, kinocilium, tip links, perilymph
    conductive vs. sensorineural hearing loss

Review Questions for Chapter 13:
The Vestibular System

1. In what ways are the vestibular and auditory sense organs similar?

2. Explain how the semicircular canals are specialized to assess rotational acceleration of the head, while the otolith organs are specialized to detect linear acceleration and static position of the head relative to the gravitational axis.

3. As your head turns horizontally to the left, what happens to activity levels in your left and right vestibular nerve? The imbalance in neural activity would lead to physiological nystagmus, with the slow component in which direction? What purpose would these eye movements serve? A similar imbalance of activity would be obtained by irrigating your left ear with _____ (warm or cold?) water.

4. If you lost your vestibulo-ocular reflex (VOR), what symptoms would you experience?

5. Which cranial nerve serves both vestibular and auditory hair cells? Where does the vestibular nerve project?

6. What purposes do the vestibulo-cervical and vestibulo-spinal reflexes serve?

7. How does vestibular information reach the cortex?

8. Other terms to know:
   labyrinth
   utricle, saccule, macula, otoconia
   ampula, crista, cupula
   stereocilia, kinocilium
   medial longitudinal fasciculus

Review Questions for Chapter 15:
Lower Motor Neuron Circuits and Motor Control

1. Why are lower motor neurons referred to as the "final common path" for movements? Are the motor neurons that innervate head muscles upper or lower motor neurons?

2. List the three sources of direct synaptic input to α motor neurons. Which is the major input?

3. Do neurons in the cerebellum and basal ganglia synapse on α motor neurons?

4. Define motor unit.

5. As you try to lift a heavy box, which type of motor unit do you recruit first and which do you recruit last, according to the size principle?

6. What prevents muscle spindles from being useless when their muscle contracts?

7. Diagram the muscle stretch reflex. Explain how the antagonist muscle is inhibited via reciprocal innervation. What is the stretch reflex good for in everyday life?

8. Diagram the clasp-knife reflex. Explain how it works and what it is good for.

9. What happens to activity levels in muscle spindle afferents versus Golgi tendon organ afferents when a muscle contracts? When a muscle is passively stretched? Is this consistent with the proposal that muscle spindle and Golgi tendon organ feedback systems monitor and maintain muscle *length* and *force*, respectively?

10. What are central pattern generators in the spinal cord, and what would life be like without them?

11. Other terms to know:
    flexion reflex
    crossed extension reflex
    muscle tone
    lower motor neuron syndrome
    intrafusal and extrafusal muscle fibers
    γ motor neurons

Review Questions for Chapter 16:
Upper Motor Neuron Control of the Brainstem and Spinal Cord

1. Medial versus lateral spinal cord interneurons differ in location and pattern of connections. Describe how these anatomical distinctions correspond to functional differences.

2. The major subcortical sources of upper motor neurons are
    a. Vestibular nuclei
    b. Superior colliculus
    c. Red nucleus
    d. Reticular formation

    For each region, (a) briefly describe its role in motor control; (b) indicate whether it is part of the midbrain, pons, and/or medulla; and (c) name the pathway that projects from each of these regions to the spinal cord.

3. The primary motor cortex "controls movements, not individual muscles." What does this claim mean, and what evidence supports it?

4. Describe the roles of the medial and lateral premotor cortex. What types of experimental evidence support your answer?

5. Give an example of feedforward and feedback in postural control.

6. Does the pyramidal tract originate only in the motor cortex? Does it terminate only in the spinal cord?

7. Compare the uncrossed ventral corticospinal tract with the crossed lateral corticospinal tract with regard to origin, location, and function.

8. What is the head's equivalent of the body's corticospinal tract?

9. How is it that the motor cortex can direct precise movements even though single neurons are broadly tuned?

10. What is the basis for muscle tone?

11. What is spinal shock?

Review Questions for Chapter 17:
Modulation of Movement by the Basal Ganglia

1. What structures are included in the basal ganglia? List the main receiving areas and output areas of the basal ganglia.

2. Summarize the role of the basal ganglia in movement.

3. What is the corpus striatum?

4. What is largest source of neural input to the basal ganglia?

5. Would you expect your putamen neurons to fire as you are reaching for a doughnut, or in anticipation of your reach? Would their firing correspond better with the position of the doughnut or with the starting position of your arm? What does this suggest about the role of the putamen?

6. Parallel loops involving the basal ganglia each handle information from different cortical areas. Diagram the motor loop, indicating whether each of the pathways is excitatory or inhibitory. What are the other loops?

7. What is disinhibition? Describe how inhibition and disinhibition operate in the control of saccades.

8. In Huntington's disease, which neurons in the basal ganglia are the main ones that degenerate? Explain in terms of basal ganglia circuitry how this would lead to hyperkinetic symptoms.

9. In Parkinson's disease, what degenerates? Explain how this would account for hypokinetic symptoms. What kinds of treatments have been used to alleviate Parkinson's symptoms?

10. Other terms to know:
    caudate nucleus
    medium spiny neurons
    substantia nigra, pars compacta and pars reticulata
    hemiballismus
    trinucleotide repeats

Review Questions for Chapter 18:
Modulation of Movement by the Cerebellum

1. What are the functional differences between the cerebrocerebellum, vestibulocerebellum, and spinocerebellum?

2. Name the three cerebellar peduncles. Which contain cerebellar afferents and which contain efferents?

3. What is the largest source of input to the cerebellum?

4. What is meant by “fractured” somatotopy in the cerebellar cortex?

5. What kinds of sensory information do you think the cerebellum might need in order to compare intended movements with actual movements? How does the cerebellum get its sensory input?

6. Diagram the basic circuit of the cerebellum, showing a Purkinje cell, granule cell, parallel fiber, mossy fiber, climbing fiber, and a neuron in a deep cerebellar nucleus. Label the three layers of the cerebellar cortex.

7. What type of neurons provide the output of the cerebellar cortex? Is it true that all of the output of the cerebellar cortex is inhibitory? Does this seem inconsistent with the complex tasks of the cerebellum?

8. What does cerebellar ataxia reveal about normal functioning of the cerebellum?

9. Neither the cerebellum nor the basal ganglia project directly to the spinal cord. How then does their activity influence motor neurons? Briefly compare their roles.

10. Other terms to know:
    basket cells, stellate cells
    prions, Creutzfeldt-Jakob disease (CJD)
    cerebellar ataxia, intention tremor
    nystagmus, vestibulo-ocular reflex
    weaver mutant, reeler mutant
    dentate, interposed, and fastigial nuclei
    folia

Review Questions for Chapter 24:
Plasticity of Mature Synapses and Circuits

1. What is plasticity?

2. What can short-term synaptic changes such as facilitation, synaptic depression, and posttetanic potentiation contribute to the study of learning and memory?

3. What is the synaptic basis for short-term sensitization in *Aplysia*? What additional changes underlie long-term sensitization?

4. What is long-term potentiation (LTP), and how is it obtained experimentally? Use as an example LTP in CA1 of the hippocampus.

5. What is long-term depression (LTD) and how is it obtained experimentally?

6. Compare cellular mechanisms involved in LTP versus LTD.

7. Is LTP a good model for learning and memory? Include in your answer associativity and input specificity.

8. How is it known that there are silent synapses? How are these converted to active excitatory synapses?

9. What might LTP and epilepsy have in common?

10. Why do axons regenerate so much more successfully in the PNS than CNS?

11. Where in the adult brain are you most likely to find new neurons?

12. Other terms to know:
    habituation
    CREB
    dendritic spines
    neural stem cells
    functional re-mapping

Review Questions for Chapter 25:
The Association Cortices

1. Describe the basic organization al features of neocortex, shared by association cortices and sensory and motor cortices.

2. What features distinguish association cortices from sensory and motor cortices? Consider thalamic input and corticocortical connections.

3. How did Brodmann decide where to put the boundaries between Brodmann's areas?

4. What are the main function(s) of each of the following? What techniques and approaches have been used to reveal these functions?
   parietal association cortex
   temporal association cortex
   frontal association cortex

5. What does the study of agnosias contribute to cognitive neuroscience?

6. What does contralateral neglect syndrome suggest about the neuroanatomy of attention? Why does contralateral neglect result from damage to the right, but not left, parietal lobe cortex?

7. Where and what are "recognition neurons"? "planning neurons"? "attention neurons"?

8. What cortical region is particularly critical for the delayed response task?

9. Is brain size a good measure of intelligence?

10. Other terms to know:
    cognition
    apraxia
    cytoarchitectonic
    prosopagnosia

Review Questions for Chapter 26:
Language and Speech

1. Is language unique to humans? Explain.

2. Compare the functions of the right and left hemispheres. What techniques have been used to investigate cerebral lateralization (hemispheric specialization)?

3. Where is Broca's area? Wernicke's area? Compare Wernicke's aphasia and Broca's aphasia. What can the variety of aphasias tell us about the neural basis of language?

4. What similarities between sign language and spoken language suggest that they have common neural substrates?

5. Is hemispheric specialization unique to humans?

6. What is the relationship between handedness, lateralization of language, and anatomical hemispheric asymmetry?

7. What evidence suggests the importance of biological constraints or predispositions in language learning?

8. If a split-brain patient is briefly shown a pencil in her left visual field, will she be able to describe the pencil? Which hand would she use to select the pencil by feel from a set of test objects? Explain with the aid of a diagram.

9. Other terms to know:
   phoneme, grammar, syntax
   conduction aphasia
   planum temporale
   aprosodias

Review Questions for Chapter 30:
Memory

1. Distinguish between declarative memory and nondeclarative (procedural) memory. Give examples of each.

2. What lines of evidence support the proposal that declarative memory and procedural memory involve different brain mechanisms?

3. What lines of evidence support the proposal that short-term and long-term memory involve different brain mechanisms?

4. Would you want to have a perfect memory? Consider the advantages of forgetting.

5. What has patient H.M. taught us about human memory? In addition to studying people with brain damage, what approaches could be used to assess hippocampal involvement in consolidation?

6. Where would you expect to find engrams (stored representations of memories) for (a) declarative and (b) procedural memories? What evidence supports your answer?

7. What are the brain and behavioral symptoms of Alzheimer's disease? What is known about the cause of Alzheimer's disease?

8. Based on what you know about human memory, what advice can you offer to students studying for final exams?

9. Other terms to know:
   immediate memory, working memory
   priming
   anterograde and retrograde amnesia
   Korsakoff's syndrome