

260-2017-12-06-exam-4-study-guide

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Prelude

So Long (It's Been Good To Know You) - The Weavers - (Lyrics needed)



Today's topics

- Review for Exam 4
 - Monday, December 11, 12:20-2:10 pm in 302 Boucke

History

- Descartes thought _____ about the _____
- Fluid from the cerebral ventricles was once thought to _____

Methods

- Single unit recordings have ____ spatial and ____ temporal resolution.
- EEG has ____ spatial and ____ temporal resolution.
- Single unit recordings measure ____; EEG measures ____.

Anatomy

- Directional terms, slices
 - In the human forebrain ____ and superior overlap.
- Gross
 - The ____ means "little brain" in Latin
 - The ____ and ____ in the midbrain release dopamine
 - The ____ controls endocrine and ANS activity.

- Gross anatomy
 - The insula is located deep inside the ____.
 - Forebrain/midbrain/hindbrain
 - ventricles/CSF, meninges, blood supply
 - Gyri/sulci
 - lobes, insula/insular cortex
 - gray/white matter

Cellular anatomy

- Neurons receive most of their input on the ____ and ____.
- Gray matter is made of ____; white matter is made of ____.

Neurophysiology

- Resting potential
 - In neuron at rest, [K⁺] inside is greater than outside; What force(s) _____ push [Na⁺] inward?
- Ca⁺⁺ influx is involved in _____, _____, and _____.
- EPSP/IPSPs are _____ than action potentials

- Nodes of Ranvier contain lots of ____gated channels
- The absolute refractory period occurs when voltage-gated Na^+ channels ____
- Action potential phases, causes/components
- Synaptic transmission
 - EPSPs, IPSPs
- Synaptic plasticity, LTP, NMDA receptors

Neurochemistry

- Big Three – Glu, GABA, ACh
- Neuromodulators – DA, NE, 5-HT
- Hormones
 - Oxytocin, vasopressin are released from ____.
- Can we readily measure neurotransmitter levels in the brain?

Evolution and development

- There is a "mammalian" brain plan (True/False)

Emotion

- The ____ lobe contains the amygdala
- Pleasure/reward systems
- Fear, stress in behavior and brain
 - What's more important to measure, objective stress or perceived stress?

Perception and Action

- Sensory fibers enter the (dorsal/ventral) spinal cord.
- Parietal lobe contains ____ cortex.
- Photoreceptor cells release more neurotransmitter in (darkness/light)
- Can't see reddish-green because long ("red") and medium ("green") cones ____

- Areas of cortex devoted to moving fingers, tongue are (large/small)
- Most retinal ganglion cells project to the ____.
- Sound direction is signaled by ____.
- Minty flavors taste 'cool' because...
- Topographic maps: somatosensation, audition, vision
- Perceiving what vs. where: audition, vision
- Functional segregation: by receptor, type of info
- Receptive fields

Memory

- Long-term Potentiation (LTP) involves neuron A's connection to neuron B ____
- NMDA receptor opens when sending cell ____ and receiving cell ____.
- Amnesia
 - ____ is impaired; ____ is spared.
- NMDA receptors and Hebbian learning
- Hippocampus size and memory demands