

Psychology 101 Study Guide, Exam #2

Chapter 2: The Biological Mind

- I. Imaging techniques of the brain**
 - a. CT: anatomical
 - b. MRI: anatomical
 - c. fMRI: functional
 - d. SPECT and PET: functional
 - e. EEG: functional
- II. Anatomical/Structural Scans**
 - a. Structural Scans: CT
 - i. CT = Computed Tomography and CAT = Computed Axial Tomography
 - ii. Stroke
 - b. Structural Scans: MRI
 - i. T1-weighted and T2-weighted
 - c. Experience-dependent neural plasticity
 - d. Functional Scans: fMRI
 - e. Functional Scans: PET
 - f. Functional Scans: SPECT
 - g. EEG: functional
 - i. Epilepsy
 - ii. Sleep
- III. Asymmetries in the brain**
 - a. Contralateral representation of sensory & motor functions
 - b. Left hemisphere
 - i. language
 - ii. Broca's area: left frontal
 - iii. b. Wernicke's area: left temporal
 - c. Right hemisphere
 - i. spatial and pattern processing
 - ii. cognitive maps
 - iii. block design
 - iv. face recognition
 - d. Corpus callosum
 - i. split brain patients

Textbook (Chapter 2):

- **Focus on Table 2.1 and final portion of 2-4c on Right-brain Left-brain and Lateralization**

Chapter 4: The Aware Mind

IV. States of Consciousness

- a. What is consciousness?
 - i. Selective attention
 - ii. Voluntary control
 - iii. Self-awareness
- b. The seat of consciousness in the brain
 - i. Descartes' notion of the Pineal
 - ii. Split-brain research
- c. Hemisphere preferences in split-brain
 - i. Colors
 - ii. Clothing
 - iii. Faces
- d. What does split-brain research reveal about consciousness?
- e. Altered States of consciousness
 - i. Unified sense of consciousness over time?
 1. Identity
 2. Memory
 3. Uninterrupted stream of consciousness
 - ii. Dissociative Identity Disorder (DID)
 1. Perspectives on the Genesis of DID
 - a. Post-traumatic Model
 - b. Socio-cognitive Model
 - c. DSM-5 Diagnostic Criteria
 - d. The DID Study
 - i. Procedure
 - ii. "Was it on list B?"
 - iii. Participants
 - iv. Results
 2. Cognitive mechanisms in socially constructed DID
 - a. Memory-constructive & reconstructive
 - i. Encoding
 - ii. Storage
 - iii. Retrieval
 - iv. Evaluation
 - b. Mental representation

V. State & mood dependent memory

- a. State dependent

- b. Mood dependent
- VI. Hypnosis**
 - a. Relaxed state
 - b. Focused awareness
 - i. Aspects of hypnosis
 - 1. Posthypnotic suggestion
 - 2. Posthypnotic amnesia
 - c. Fallacies of hypnosis
 - d. Hypnosis characteristics
 - i. Cessation of planfulness
 - ii. More selective attention
 - iii. Rich fantasy
 - iv. Reality testing
 - v. Suggestibility
 - vi. Post-hypnotic amnesia

- VII. Sleep and Dreams**
 - a. Types and stages of sleep
 - i. EEG activity
 - 1. Beta activity
 - 2. Alpha activity
 - 3. Delta activity
 - ii. Stages of sleep
 - 1. Stage 1
 - 2. Stage 2
 - 3. Stage 3
 - 4. Stage 4
 - 5. REM
 - iii. Sleep stages
 - 1. Stage 1: Alpha
 - 2. Stage 2: Theta waves
 - 3. Stage 2 : Sleep Spindles
 - 4. Stage 3-4: delta waves
 - 5. REM: beta waves
 - b. Why do we dream?
 - i. Wish fulfillment
 - ii. Information processing
 - iii. Physiological function
 - c. When deprived of sleep
 - i. REM rebound
 - d. Individual differences in dreams

- i. Defense mechanism
- ii. State-dependent phenomenon
- e. Lucid dreaming

Chapter 3: The Perceiving Mind

VIII. Sensation and Perception

- a. Sensation
- b. Perception
- c. Top down vs. bottom up processing
- d. Brain as scientist prisoner
 - i. Brain senses only neural energy
 - ii. Physical energy-transduction
- e. Vision
 - i. Eye receptors respond to light energy
 - ii. Structure of the eye:
 - 1. Cornea
 - 2. Iris
 - 3. Lens
 - a. Fixation reflex
 - b. Near-sightedness & far-sightedness
 - c. Accommodation
 - 4. Retina
 - a. Layers of retina
 - i. Light passes through :
 - 1. Vitreous humor
 - 2. Ganglion cells and bipolar cells
 - 3. To photoreceptors
 - b. Receptor cells
 - i. Rods
 - ii. Cones
 - 1. Three types (unless colorblind)
 - 2. Blue, green, red
 - iii. Blind spot
 - c. Fovea
 - 5. Optic nerve
 - iii. Vision-how it works
 - 1. Light energy causes chemical reaction
 - 2. Rods and cones send graded potentials
 - a. To: bipolar cells and ganglion cells
 - b. Ganglion cells carry action potential to CNS
 - 3. Axons from ganglion cells leave the eye via optic nerve
 - a. Thalamus
 - b. Primary visual cortex in occipital lobe

- iv. Why different layers?
 - 1. Data reduction
 - 2. Feature detection

IX. Combining information in the brain

- a. The visual pathways
 - i. Main pathway: ganglion cells optic nerve optic chiasm thalamus striate cx
 - ii. Other pathways
- b. Receptive fields
- c. Multiple representations of images
- d. Depth Perception
 - i. Size cues
 - ii. Obstruction of some objects by others
 - iii. Binocular disparity
- e. The human organism is designed to detect differences and change:
 - i. brightness contrast
 - ii. lateral inhibition
 - iii. Contrast; microsaccades

X. Audition

- a. Characteristics of sound
 - i. frequency determines pitch
 - ii. Amplitude determines loudness
 - 1. Sound measured in decibels (dB's)
 - 2. Logarithmic scale
- b. The ear
 - i. Outer ear
 - ii. Auditory canal
 - iii. Eardrum
 - iv. Bones of middle ear
 - 1. hammer
 - 2. anvil
 - 3. stirrup
 - v. Oval window
 - vi. Cochlea
 - 1. Two membranes
 - a. Basilar vibrates
 - b. Preferential vibration for frequencies
 - 2. Three fluid filled sections
 - 3. Hair cells
 - vii. Semicircular (vestibular) canals
- c. So, how do we hear?
 - i. Duplex theory of pitch perception
 - 1. Place

2. Vibration in synchrony with waveform
- ii. Sound localization
 1. Arrival time differences for lower tones
 2. Intensity differences for higher frequencies

Key Terms from the Textbook (Chapter 3):

- absolute threshold,
- audition,
- auditory nerve,
- basilar membrane,
- binocular cue,
- bottom-up processing,
- cochlea,
- cone,
- cornea,
- depth perception,
- difference threshold,
- feature detector,
- fovea,
- gate theory,
- gustation,
- iris,
- lens,
- monocular cue,
- olfaction,
- olfactory bulb,
- olfactory nerve,
- opponent process theory,
- optic nerve,
- optic tracts,
- organ of Corti,
- papillae,
- perception,
- psychophysics,
- pupil,
- retina,
- retinal disparity,
- rod,
- sensation,
- sensory adaptation,
- signal detection,
- somatosensation,

- taste bud,
- top-down processing,
- transduction,
- trichromacy theory,
- vestibular system,
- vision,
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Key Terms from the Textbook (Chapter 4):

- addiction,
- alpha wave,
- beta wave,
- biological clock,
- circadian rhythm,
- coma,
- consciousness,
- delta wave,
- depressant,
- dreaming,
- hallucinogen,
- hypnosis,
- insomnia,
- lucid dreaming,
- meditation,
- narcolepsy,
- near-death experience,
- night terror,
- non-rapid eye movement (N-REM) sleep,
- persistent vegetative state (PVS),
- psychoactive drug,
- rapid eye movement (REM) sleep,
- restless legs syndrome (RLS),
- seasonal affective disorder (SAD),
- seizure,
- self-awareness,
- sleep,
- sleep apnea,
- stimulant,
- sudden infant death syndrome (SIDS),
- theta wave,
- tolerance,
- wakefulness,
- withdrawal,