

# Comprehensive Examination in Experimental Psychology for Fall 2006

## Biopsychology Comprehensive Questions and Readings:

1. Discuss how environmental factors play a role in the neural basis of drug addiction. What does this tell us about the specific mechanisms involved with drug addiction?

Ehrman, R., Ternes, J., O'Brien, C.P, McLellan, A. T. (1992). Conditioned tolerance in human opiate addicts. *Psychopharmacology*, 108, 218-224.

Sigel, S. (1975). Evidence from rats that morphine tolerance is a learned response. *Journal of Comparative Physiological Psychology*, 89 (5), 498-506.

Siegel, S., Hinson, R.E., Krank, M.D., McCully, J. (1982). Heroin "overdose" death: Contribution of drug-associated environmental cues. *Science*, 216 (4544), 436-437.

2. Describe what abilities were impaired and what abilities were spared in H.M.'s amnesia. Use specific examples from both past and more current research in your answer. What does H.M.'s type of amnesia tell us about how memory is organized in the brain?

Corkin, S. (2002). What's new with the amnesic patient H.M.? *Nature Reviews Neuroscience*, 3, 153-160.

Corkin, S., Amaral, D., Gonzalez, R., Johnson, K., et al. (1997). H. M.'s medial temporal lobe lesion: Findings from magnetic resonance imaging. *Journal of Neuroscience*, 17, 3964-3979.

Sidman, M., Stoddard, L. T., & Mohr, J. P. (1968). Some additional quantitative observations of immediate memory in a patient with bilateral hippocampal lesions. *Neuropsychologia*, 6, 245-254.

Squire, L.R. (1992). Memory and the hippocampus: A synthesis from findings with rats, monkeys, and humans. *Psychological Review*, 99, 195-231.

3. How can learning be explained as the result of long-term potentiation? How is this related to the Hebb rule?

Diamond, D. M., Dunwiddie, T. V., & Rose, G. M. (1988). Characteristics of hippocampal primed burst potentiation in vitro and in the awake rat. *Journal of Neuroscience*, 8, 4079-4088.

Hebb, D. O. (1949). *The Organization of Behaviour*. New York: Wiley-Interscience.

Kelso, S. R., & Brown, T. H. (1986). Differential conditioning of associative synaptic enhancement in hippocampal brain slices. *Science*, 232, 85-87.

4. *What is the James-Lange Theory of emotion? Discuss the ways in which the James-Lange Theory both is and is not supported by recent evidence.*

Ekman, P., Levenson, R. W., & Friesen, W. V. (1983). Autonomic nervous system activity distinguished between emotions. *Science*, *221*, 1208-1210.

Field, T., Woodson, R., Greenberg, R., & Cohen, D. (1982). Discrimination and imitation of facial expressions in neonates. *Science*, *218*, 179-181.

Hohman, G. W. (1966). Some effects of spinal cord lesions on experienced emotional feelings. *Psychophysiology*, *3*, 143-156.

Levenson, R. W., Ekman, P., & Friesen, W. V. (1990). Voluntary facial action generates emotion-specific autonomic nervous system activity. *Psychophysiology*, *27*, 363-384.

5. *Different areas in the brain can compensate with practice or change with nonuse. What does current research suggest about brain plasticity and critical periods in the brain during development?*

Pantev, C., Engelien, A., Candia, V., & Elbert, T. (2001). Representational Cortex in Musicians. *Annals of the New York Academy of Sciences*, *930*, 300-314.

Xerri, C., Merzenich, M. M., Peterson, B. E., Jenkins, W. (1998). Plasticity of Primary Somatosensory Cortex Paralleling Sensorimotor Skill Recovery From Stroke in Adult Monkeys. *Journal of Neurophysiology*, *79*, 2119-2148.

Holloway, V., Gadian, D.G., Vargha-Khadem, F., Porter, D. A., Boyd, S. G., & Connelly, A. (2000). The reorganization of sensorimotor and function in children after hemispherectomy: A functional MRI and somatosensory evoked potential study. *Brain: A Journal of Neurology*, *123* (12), 2432-2444.