

UNIVERSITY OF TORONTO
Faculty of Arts and Science

FINAL EXAMINATIONS 2004

APRIL/MAY 2004 EXAMINATIONS

NRS 201H1 S

Duration - 3 hours

No Aids Allowed

11 points for each question

1. Review evidence that dopamine and glutamate (and their receptors) are involved in the expression of schizophrenia. Why is it still uncertain whether these chemicals cause schizophrenia?
2. Compare the strengths and weaknesses of positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) methods for visualizing functional activity in the human brain.
3. Human obesity is said to be a “leptin-insensitivity syndrome”. What is the evidence for this statement? What hypothalamic mechanisms might be responsible for leptin insensitivity?
4. How do axons grow, and how do they make connections with postsynaptic target neurons? Choose one system described in the text (e.g., in the spinal cord, tectum, thalamus or cortex) , and describe chemical and/or environmental factors that influence the growth and then the organized connections made in that system.
5. What is the role of the amygdala in eliciting neural and hormonal responses to threatening stimuli in rodents?
6. Review evidence that genes in the hippocampus are important for several types of memory and for long-term potentiation.