UNIVERSITY OF TORONTO
Faculty of Arts and Science

APRIL/MAY EXAMINATIONS 2002

NRS 201H1 S
Duration - 3 hours
No Aids Allowed

11 points for each question

1. Review evidence that the telencephalon evolved originally as an organ to process visceral and chemical information. Which parts of the telencephalon are important for visceral and chemical processing in humans?

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. Describe the Wernicke-Geschwind theory of language, and explain how it accounts for different types of speech disorders ("aphasias"), and for reading.

4. Describe the life cycle of a pyramidal cell in deep layers of the adult cerebral cortex, from its birth to its fully formed connections with many other neurons in the fully developed brain.

5. Review the brain systems and chemicals needed for the performance of unconditioned and conditioned responses to strong footshock in rodents (summarized under the rubric "fear and anxiety"). What is the evidence that homologous systems are also important for "anxiety disorders" in humans?

6. Review evidence that CREB (cyclic AMP response-element binding protein) is important for long-term memory and long-term potentiation in animals.