

UNIVERSITY OF LONDON
NEUROSCIENCE MSc EXAMINATION

**For Internal Students of the
INSTITUTE OF PSYCHIATRY
King's College London**

12th December 2011 at 11:30 - 14:00

PAPER A1

Answer FOUR questions only

1. How does the size and shape of a neuron relate to its function or state of health?
2. Describe how astrocytes communicate with one another.
3. Describe using examples, what the terms pyramidal pathways and extrapyramidal pathways refer to.
4. Discuss the role of the mitochondrion in the intrinsic pathway of apoptosis?.
5. Discuss how receptors control intracellular calcium levels
6. Describe the experimental techniques that could be useful in elucidating the function of ion channels, specifically their specificity, voltage sensing and inactivation.
7. Explain the role of the glial glutamate uptake transporter in both normal neurotransmission and during an ischaemic episode, such as a stroke.
8. Discuss the importance of G-protein coupled receptors and second messenger systems for signal transduction in the CNS. Include details of their mechanisms of action.
9. Describe some examples of cell-cell signaling that may have relevance to our understanding of Alzheimer's disease
10. As a neuroscience researcher, how might a knowledge of RNA interference be useful to you?