

NEUROSCIENCE MSc EXAMINATION

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

14th March 2011 14:00 - 16:30

Further Neuroscience

PAPER B1 (renumbered B in September 2011)

Answer **FOUR** questions only

1. Summarise the genetic evidence for the amyloid cascade hypothesis in Alzheimer's disease.
2. Describe the brain reward pathways and how cocaine and amphetamine interact with them. Discuss the relevance of these pathways to addiction-related behaviour.
3. Describe neural effects of psychological therapies in psychiatric disorders. Do they tell us anything about these disorders?
4. Outline how self-tolerance is normally maintained and discuss how infection or neoplasia could trigger autoimmune disease of the nervous system.
5. What do we know about the influence of genes on cognition?
6. How does the realization that dendrites target their growth using known "axon guidance" molecules change our thinking about circuit development?
7. What are the main findings from structural MRI studies in bipolar disorder? Can structural MRI be used to diagnose bipolar disorder? Explain why.
8. Outline the evidence that persistent adult aggression is a developmental phenomenon and discuss how findings from different branches of neuroscience support this theory.