

**UNIVERSITY OF LONDON**  
**NEUROSCIENCE MSc EXAMINATION**

**For Internal Students of the  
INSTITUTE OF PSYCHIATRY  
King's College London  
20 January 2012 14:00 – 16:30 hrs**

**PAPER A3**

**Answer FOUR questions only**

1. R. Descartes (1596-1640) suggested that the intensity of pain was directly related to the amount of associated tissue injury. Discuss this statement under the light of recent research evidence.
2. Summarise the pathway that controls light-mediated release of melatonin.
3. What are the strengths and weaknesses of genome-wide association studies in addiction genetics?
4. Discuss how animal models of drug addiction have been used to assess abuse liability of novel psychoactive substances.
5. What is a delusion? How might cognitive biases lead to delusion formation?
6. Discuss evidence for dopamine dysregulation in schizophrenia.
7. Describe what neuroimaging has told us about normal brain development.
8. Compare and contrast the clinical features of two common types of dementia.
9. Brain imaging data have traditionally been analysed one voxel at a time but recently, whole brain classification has increasingly been used. What are the different ways in which these two approaches can contribute to understanding psychiatric illness.
10. What advantages does functional magnetic resonance imaging have over FDG positron emission tomography for functional imaging of the brain ?
11. Amyotrophic lateral sclerosis (motor neuron disease) and frontotemporal dementia represent two ends of a phenotypic spectrum. Discuss the clinical, genetic and pathological basis for their links?.

12. What is the future of neural stem cell therapy for the Neuronal Ceroid Lipofuscinoses (NCLs)?