

**UNIVERSITY COLLEGE LONDON**

University of London

**EXAMINATION FOR INTERNAL STUDENTS**

For The Following Qualification:–

*M.Sc.*

**M.Sc. Clinical Neuroscience: Paper 3**

**COURSE CODE : CLNEM003**

**DATE : 08-MAY-06**

**TIME : 14.30**

**TIME ALLOWED : 3 Hours**

## PAPER THREE

### **IMPORTANT:**

- **WRITE ON ONE SIDE OF THE PAPER ONLY**
- **BEGIN EACH NEW QUESTION ON A FRESH PAGE**

*Please ignore other instructions to the contrary*

*12 general questions.*

**Answer two questions only.**

*Each question carries 50 marks.*

*(Allow about 90 min for each question.)*

1. Describe the role of molecular genetics including microarray data in neuro-oncology, and explain with examples how patients with brain tumours are directly benefiting from these advances.
2. With reference to dopamine metabolism, discuss the inherited disorders associated with a dopamine deficiency and explain how this group of disorders is currently diagnosed and treated.
3. Describe the various roles of glial cells in the brain and give examples of specific interactions between glial cells and neurons to support this. Describe how these interactions may be detrimental to neurons in neurodegenerative diseases.
4. Discuss the epidemiology of multiple sclerosis, focusing on studies in favour of it being caused by an environmental factor.
5. Discuss the aetiology of epilepsy.
6. Hierarchical models of brain function fail to explain either normal cerebral function or recovery from brain damage" Discuss.
7. The autonomic nervous system is essential for survival. Discuss.
8. How is dystonia classified and what are its causes? How can it be surgically treated and what are the indications for this?
9. Describe and contrast the different theories of the hippocampal function in memory.
10. Discuss the various ways in which the anatomy and physiology of connections in the brain can be used to constrain theoretical accounts of sensory information processing.
11. What is the evidence for the 'protein only hypothesis' of infectivity in prion disease?
12. Describe at least two different clinical applications of magnetic resonance imaging. Also describe what contrast agents can be used in MRI, how they affect relaxation times, how they affect image contrasts, and why they are used in the clinical applications described.

[End of paper]