

# UNIVERSITY COLLEGE LONDON

*University of London*

## EXAMINATION FOR INTERNAL STUDENTS

*For the following qualifications :-*

*M.Sc.*

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

COURSE CODE : **CLNEM003**

DATE : **10-MAY-02**

TIME : **10.00**

TIME ALLOWED : **3 hours**

02-N0030-3-40

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**TURN OVER**

### PAPER THREE

12 general questions. Answer *two questions only*. Each question carries 50 marks. Allow about 90 min for each question.

PLEASE WRITE ON ONE SIDE OF EACH PAGE IN THE ANSWER BOOK AND ANSWER EACH QUESTION ON A FRESH SHEET OF PAPER

1. Discuss the major neuropathological features of Alzheimer's disease in relation to the amyloid cascade hypothesis.
2. With suitable examples, describe the criteria used to define a substance as a neurotransmitter. Describe how neurones take up and release neurotransmitters, giving examples of how modulation of neurotransmitter uptake/release can underlie both neurological diseases and their treatment.
3. 'Molecular genetics will provide answers to understanding pathogenic mechanisms in both familial and sporadic motor neurone disease'. Discuss.
4. How have epidemiological studies of epilepsy contributed to our understanding of disease mechanisms?
5. Describe the role of the EEG and brain imaging in the evaluation and treatment of patients with epilepsy.
6. Localised lesions within the cerebral hemispheres can give rise to a variety of specialised deficits in visual function. Choosing at least three examples, describe what insights they offer into the organisation of the human brain.
7. What makes motor control difficult and what computational principles does the CNS use to overcome these difficulties?
8. "The temporal resolution in fMRI and PET experiments makes these methods problematic for exploring the physiology of the human brain". Discuss.
9. Discuss clinical and pathological features of Parkinson's disease, multiple system atrophy and progressive supranuclear palsy, and comment on whether individual brain lesions correlate with clinical findings and if so how.
10. How might patients recover function after suffering from stroke? Consider both acute and chronic timescales of recovery.
11. How has evidence from neuropsychology and neuroimaging converged and/or diverged regarding the functional neuroanatomy of human memory?
12. What are the neural mechanisms of attention as revealed by studies in normal humans or monkey neurophysiology, and what are the implications for understanding neurological disorders of attention such as unilateral spatial neglect?

[End of paper]