UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For the following qualifications :-

M.Sc.

ESGV8: Space, Form, Behaviour and Its Production

COURSE CODE   : **ENVSGV08**

DATE   : **11-JAN-02**

TIME   : **10.00**

TIME ALLOWED   : **2 hours**

Space Form Behaviour and its Production
ENVSGVO8

Students must answer 3 questions from the list below:

1. In his book 'On Growth and Form' by D'Arcy Wentworth Thompson, the author describes form as a 'diagram of forces'. Discuss his definition in the light of generative programming.

2. Evolutionary design can be realised 'in silico' by two types of programmes: Genetic Algorithm and Genetic programming. Outline the main differences and what implication they have on the design.

3. Could there ever be a fitness function for architecture? Illustrate with some examples.

4. Biological organisms have been described as complex whereas man-made mechanical systems as merely complicated. Discuss the difference between the two terms and what kind of architectural systems could be described as complex.

5. The terms 'Emergent Property' and 'Emergent Behaviour' are frequently used in the context of generative systems. Describe a generative system and its Emergent Properties.

6. What is a fractal and in what way can fractals be utilised in urban analysis?

7. How could 'Space Syntax' theory contribute to the design of Virtual Environments? Outline the main ideas of Space Syntax and one potential use in Virtual Environment design.

8. Lindenmeyer systems are the products of computational biology fractals and cellular automata products of computational mathematics. What roll can these systems play in the construction of Virtual Environments?

9. What are Artificial Neural Networks and what can be done with them?

10. A famous book is called "The Hippocampus as a Cognitive Map". Discuss how a Kohonen network works, its similarity with the hippocampus, and how it might be used as a cognitive map (i.e., an internal representation of a spatial environment).

Total for this paper is 100 marks

END OF PAPER