

UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For the following qualifications:-

M.Sc.

1

ESGV8: Space, Form, Behaviour and Its Production

COURSE CODE : **ENVSGV08**

DATE : **29-Aug-03**

TIME : **10.00**

TIME ALLOWED : **2 hours 0 minutes**

03-N23-4-20

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TURN OVER

Students must answer 3 questions from the list below:

1. Describe the Turing Test. What relevance does the test have on modern day virtual environments and virtual communities?

2. Explain the importance of Lindenmayer systems (or L-systems) in the modelling of trees. How could these ideas be applied in the architectural design process? How might the design process and the resultant design benefit from this type of application?

3. Compare and contrast the design of a virtual environment using a platonic solid based CAD system with a system that could incorporate L-grammars and recursion. How could such a system benefit the architectural design process?

4.

'The study of evolutionary algorithms allows us to get back to a more rigorous analysis of the basic determinants of form, where the global form of an object not only should not, but actually cannot, be predetermined on an aesthetic whim. Thus with genetic algorithms we have an opportunity to experiment with the true determinants of form in a way that the pioneers of the modern movement would have relished - an aesthetic of pure function whose outcome is totally embedded in the problem to be solved.'

Paul Coates '99

Discuss the issues raised by the above quotation. How might genetic algorithms contribute to the process of architectural design?

5.

"Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line" (Benoit Mandelbrot, 1982)

What kind of objects was Mandelbrot referring to when he wrote this? Define such objects, note their properties, give examples, and explain how they might be used to create digital environments. Show how such objects might be generated using techniques such as Cellular Automata.

6. Discuss the use of fractals in city planning analysis.

7. How could 'Space Syntax' theory be used in the analysis of communication patterns in virtual environments?

8. What do we mean by 'Interface Design'? Discuss the role of 3-dimensional interfaces in virtual environments.

9. Define what you understand by the term 'collaborative virtual environments' or 'CVE's'

10. What do we mean when we talk about interface design? In what situations do you think the use of 2D and / or 3D interface design might be appropriate?

(total 100.marks)

END OF PAPER