

UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For The Following Qualification:–

M.Sc.

ESGL3: Lighting: Current Research Issues

COURSE CODE : ENVSGLO3

DATE : 05-MAY-06

TIME : 10.00

TIME ALLOWED : 3 Hours

UNIVERSITY OF LONDON

MSc DEGREE IN BUILT ENVIRONMENT 2006
for Internal Students of University College London

ESGL3: Lighting: current research issues (resit)

Answer **FOUR** questions.

All questions carry equal marks. Use annotated sketches.

1. *Brutalism* and *Minimalism* in architecture have been described as being 'acutely sensitive to light'. Using representative examples, prepare a response to this statement.

2. Real visual scenes contain elements of lightness (brightness), colour and perspective. Show how these elements are treated in lighting simulation by

(a) physical scale model

(b) by computer.

Indicate the success of these techniques in representing reality.

3. "What are the barriers to achieving good-quality lighting in real places?
Can some of them be removed - or is the situation hopeless?"

Proceedings of the First CIE Symposium on Lighting Quality (1998)

You are asked to develop a response to this proposition.

4. Indicate how recent research into the effect of light on chronobiology may assist the designer to create lit environments that are stimulating and comfortable for users.

TURN OVER

ESGL3: Lighting: current research issues *continued*

5. Outline the steps involved in undertaking the daylight analysis of a proposed development using a physical model in an artificial sky. Pay particular attention to the precautions made to ensure accuracy in the construction of the model.

Indicate how the measured data may be transformed into illuminance data.

6. Present an argument for re-evaluating the luminous effectiveness of daylight based on the well-known anomalies of the CIE photometric system and the effects of spectrum on brightness perception.

7. Outline the features of the following theories of colour:

(i) the *trichromatic* theory (Young 1802)

(ii) the *opponent-colour* theory (Hering (1874)

Compare the usefulness of each theory in describing the psychological response to colour.

8. Controls strategies for the practitioner in the entertainment industry have followed a different development path to those in use in architectural lighting. Discuss the prospects for the merging of the two traditions in future multi-media lit environments.

END OF PAPER