

UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For The Following Qualification:-

B.Sc.

ES2223: Technology Studies

COURSE CODE : **ENVS2223**

UNIT VALUE : **0.50**

DATE : **21-MAY-04**

TIME : **10.00**

TIME ALLOWED : **3 Hours**

ENVS 2223 TECHNOLOGY STUDIES

Answer 5 questions only

1. Discuss how increasing use of prefabrication on construction sites is changing the traditional view of material and plant management.
(20 Marks)

2. A contractor is required to design and construct a medium rise car park on a very congested inner city site using a mix of insitu and precast concrete.
 - i. Describe how the construction of the insitu reinforced frame and floors can be facilitated by careful design of the form of the structural elements involved.
(10 marks)
 - ii. Discuss possible reasons for the selection of the above scheme over a steel frame and composite floor design
(10 Marks)

3. A twelve-storey block of flats is vacant. The block was built in 1962 and consists of insitu concrete floors and cavity masonry walls, together with an insitu concrete flat roof.
The building has been purchased for student accommodation and a survey has suggested that the wall ties to the cavity have corroded on the exposed side.
 - i. Discuss the symptoms, diagnosis and causes of corroded wall ties and describe a remedy that may be appropriate to the situation.
(10 marks)
 - ii. Critically appraise the options for the conversion of the building into student accommodation.
(10 marks)

4. Buildability is a key element in building production.
Define buildability and appraise its value at both the design and production phases of a construction project.
(20 Marks)

TURN OVER

5. A large single storey basement is to be constructed in reinforced concrete on a confined inner city site.
- (a) Prepare a method statement to illustrate an appropriate technique and construction sequence for the basement. (10 Marks)
- (b) Describe with the aid of sketches, the detailing required to ensure watertightness. (10 Marks)
6. Soil surveys have indicated high water table levels on a green field site, which is being developed into a park of light industrial buildings. Describe and compare two alternative methods for the temporary de-watering of the construction areas during the sub-structure work. (20 Marks)
7. A multi-storey building is to be constructed on a city centre site. Critically examine the issues to be considered when preparing a site layout for the development prior to commencing the contract. (20 Marks)
- 8.
- (a) Discuss the main features of large single storey industrial and commercial 'sheds' in terms of performance and construction. (10 Marks)
- (b) Produce an annotated detail of a typical portal frame connected to a pad foundation. Describe the two types of joints used at the base of the column and explain the reasons why each might be chosen. (10 marks)

END OF PAPER