NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF QUANTITY SURVEYING

PART II SUPPLEMENTARY EXAMINATION AUGUST 2013

BUILDING CONSTRUCTION III AQS2201

Time: 3 hours **Total Marks: 100**

Instructions to candidates
Answer any four questions

Question 1

a) Identify and discuss the type of substructure and tanking system that could be used to provide waterproof protection for different types of habitation, uses and occupations.

(15 marks)

b) Sketch and annotate cross-sections through basement walls constructed using:
- Impermeable barrier
- Monolithic concrete **(10 marks)**

Question 2

With the aid of sketches, provide a step by step statement describing how a 600mm x 600mm square x 2.5m high concrete column formwork is positioned, secured concrete, cast and struck. Include the assembly of reinforcement cage and starter bars. Annotated sketches should be used to support the statements. **(25 marks)**

Question 3

Contiguous piled walls are often specified for basement retaining walls.

(a) Outline the circumstances when it may be required to specify this method of construction. **(7 marks)**

(b) Describe and illustrate two methods of providing lateral restraint to the wall.

(6 marks)

(c) Detail a drained cavity waterproofing system suitable for the basement wall.

(12 marks)

Question 4
Compare and contrast the characteristics and benefits of table formwork and horizontal panel and beam formwork. **(25 marks)**

Question 5

The ground floors of large portal frames are often constructed using in-situ concrete laid in long strips (bays).

a. After concrete has been placed in the floor bays, it is still not quite ready to be finished until it is compacted. Identify and describe two methods used to compact concrete and equipment used to achieve full compaction. **(15 marks)**

b. Explain why it is essential to reduce the amount of entrapped air in a freshly laid concrete floor? **(10 marks)**

END OF EXAMINATION