

SIR ARTHUR LEWIS COMMUNITY COLLEGE

Division of Technical Education and Management Studies

End of Course Supplemental Exam

Examination Session : **May 2005**
 Tutor(s) : **Rosaline Isaac, Philip J Larodé.**
 Programme Title : **Architectural Technology II**
 : **Construction Engineering II**
 : **Quantity Surveying II**
 Programme Codes : **3BD-ART-AD**
 : **3BD-COE-AD**
 : **3BD-QUS-AD**
Course Title : **Building Technology III**
 Course Code : **BLT211**
Exam Date : **4, May, 05**
 Commencement Time : **9:00 am**
 Duration : **3 hours.**
 Invigilators : **Rosaline Isaac, Philip J Larodé.**
 Room : **TRT R4**



#B25

YOU SHOULD HAVE THE FOLLOWING FOR THIS EXAMINATION**Pen, Pencil, Eraser, Calculator.****INSTRUCTIONS**

- 1) Answer any four (4) questions.
- 2) Start each new question on a clean page.
- 3) Borrowing and lending of equipment will not be permitted.

QUESTION # 1

- a) Using a sketch to illustrate describe flexible raft foundations and include the conditions to which they are suited. (8 marks)
- b) Produce an annotated sketch of a cantilevered column foundation. (8 marks)
- c) Describe caissons and include two examples of their use. (9 marks)

QUESTION # 2

- a) Using simple annotated sketches to illustrate describe basement excavation using the perimeter trench method. (9 marks)
- b) Sketch and annotate a vertical cross-section through a basement wall and slab to show internal tanking. (10 marks)
- c) Describe the following as used in basement construction:
i) Bentonite, ii) Ground Anchor, iii) Mastic Asphalt (6 marks)

QUESTION # 3

- a) Before underpinning operations can begin the building to be underpinned must be examined and prepared. Explain what is meant by examined and identify three things that can be done to prepare the building. (8 marks)
- b) Using an annotated sketch to illustrate describe the pre-test method of underpinning a concrete strip footing. (10 marks)
- c) Produce an annotated sketch showing how you would support and underpin a steel column. (7 marks)

QUESTION # 4

- a) What is formwork and why is it necessary? (6 marks)
- b) Sketch and annotate a vertical section through timber formwork for a reinforced concrete column. (10 marks)
- c) Describe the following and explain their function in formwork:
i) Access pocket, ii) Cleats, iii) Soleplate. (9 marks)

QUESTION # 5

- a) Sketch and annotate a vertical section through an independent scaffold for a three storey building. Also, explain when this type of scaffold is used. *(10 marks)*
- b) Using an annotated sketch to illustrate explain the purpose of gantries and the conditions under which they are used; also identify two materials used in their construction. *(9 marks)*
- c) Identify two serious problems that can occur with erected scaffolds and use annotated single-line sketches to illustrate remedies. *(6 marks)*

QUESTION # 6

- a) What are shores and what are they used for? Identify two materials used in their erection. *(6 marks)*
- b) Produce an annotated sketch showing the application of dead shores. *(11 marks)*
- c) Describe and state the function of the following in shoring:
i) Raking shore, ii) Strut, iii) Folding wedges, iv) Sole plate. *(8 marks)*

END OF PAPER

