

SIR ARTHUR LEWIS COMMUNITY COLLEGE

Division of Technical Education and Management Studies

End of Course Exam

Examination Session : December 2007

Tutor(s) : Rosaline Isaac, Philip J Larodé

Programme Title : Architectural Technology
Construction Engineering
Quantity Surveying

Programme Codes : 3BD-ART-AD
3BD-COE-AD
3BD-QUS-AD

Course Title : Building Technology 3

Course Code : BLT211

Exam Date : 12th December

Commencement Time : 9:00 am

Duration : 3 hours.

Invigilators : T Monrose, James Joseph,
S. Auguste & K. Depradine.

Room(s) : TRT-L1/L2 & TRT-R4

#B24

YOU SHOULD HAVE THE FOLLOWING FOR THIS EXAMINATION

Pen, Pencil & Eraser

INSTRUCTIONS

- 1) Write only your **ID NUMBER** (no name) on your answer booklet.
- 2) Answer any four (4) questions.
- 3) Start each new question on a clean page.
- 4) Do not detach sheets from the answer booklet.
- 5) Borrowing and lending of equipment is not permitted.



QUESTION # 1

- a) Describe two conditions that make the use of 'continuous column foundations' necessary. (6 marks)
- b) Sketch and annotate a 'balanced base foundation' system and explain the principles of its function. (11 marks)
- c) Using a simple sketch to illustrate, describe 'caissons' to include how they are installed. (8 marks)

QUESTION # 2

- a) Using annotated sketches to illustrate, describe the excavation for and installation of a diaphragm wall for a basement. (9 marks)
- b) Identify two materials used as waterproof barriers for basements and describe their application to the basement wall. (8 marks)
- c) Describe the following in basement construction:
i) Ground Anchor, ii) Water Bar, iii) Sump, iv) Loading Wall. (8 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) Explain the importance of the following in formwork construction:
i) Watertightness, ii) Ease of erection and removal. (6 marks)
- b) Sketch and annotate a longitudinal section through the formwork for a reinforced concrete stair and landing with six treads. (13 marks)
- c) Describe the following and explain their function in formwork operations:
i) Tie, ii) Joist, iii) Plinth/Kicker. (6 marks)



QUESTION # 5

- a) Scaffolds and gantries are often used in construction works; using single-line sketches to illustrate, describe each. *(8 marks)*
- b) Sketch and annotate a vertical cross-section through a 'putlog scaffold' for a three-storey building. *(11 marks)*
- c) Using single-line sketches to illustrate show how you would:
i) Brace the façade of a scaffold, ii) Prevent the overturning of an independent scaffold. *(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

