

SIR ARTHUR LEWIS COMMUNITY COLLEGE

Division of Technical Education and Management Studies

End of Course Exam

Examination Session : **May 2005**
 Tutor(s) : **Rosaline Isaac, Philip J Larodé.**
 Programme Title : **Architectural Technology I**
 : **Construction Engineering I**
 : **Quantity Surveying I**
 Programme Codes : **3BD-ART-AD**
 : **3BD-CON-AD**
 : **3BD-QUS-AD**
Course Title : **Building Technology II**
 Course Code : **BLT106**
Exam Date : **4, May**
 Commencement Time : **9:00 am**
 Duration : **3 hours.**
 Invigilators : **Rosaline Isaac, Philip J Larodé.**
 Room : **DR 2 & TRT R4**



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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) Strength and stability and fire resistance are two floor requirements. Explain these two requirements and for each, identify one type of floor where the requirement is critical. (6 marks)
- b) Sketch and annotate a vertical section through a timber ground floor at its junction with a 255mm cavity foundation wall; in your sketch include a mass concrete strip footing. (10 marks)
- c) A suspended reinforced concrete floor slab is supported on two sides by 6" concrete block walls; answer the following:
- i) Sketch and annotate the plan view of the slab showing its supports and reinforcements.
 - ii) What type of reinforced concrete floor slab is this in terms of load distribution?
 - iii) Identify the type of end support for the slab. (9 marks)

QUESTION # 2

- a) Sketch and annotate a vertical section through a timber floor at its junction with a timber external wall. The floor is of local/tropical construction with an 8" reinforced concrete block pier foundation system; in your sketch include a termite barrier. (11 marks)
- b) Using a sketch to illustrate, describe flat slab floors. (6 marks)
- c) Raised access floors are categorised as either partial access floors or full access floors. Using sketches to illustrate describe these two types of floor and explain why they are used. (8 marks)

QUESTION # 3

- a) Describe the following types of wall:
- i) Load bearing wall, ii) Non-load bearing wall, iii) Separating walls,
 - iv) Division walls. (8 marks)
- b) Using an annotated sketch to illustrate, explain the function of an attached pier. (6 marks)
- c) Sketch a vertical section through a brick and block cavity wall from foundation to eaves; the wall has a window. (11 marks)

QUESTION # 4

- a) In wall construction what is a bond? Sketch and identify two types of bond. (6 marks)
- b) Sketch and annotate a vertical section through a thermally insulated timber frame wall at its junction with a one brick thick foundation wall. (9 marks)
- c) Walls can fail by buckling, using annotated sketches to illustrate explain this type of wall failure, its relationship with lateral restraint and features in construction that provide such restraint. (10 marks)

QUESTION # 5

- a) Explain the following stair terms:
i) Step, ii) Baluster, iii) Staircase, iv) Stairwell, v) Pitch. (5 marks)
- b) Sketch and annotate the following:
i) Doglegged stair with half spaced landing, ii) Closed riser timber stair. (8 marks)
- b) A reinforced concrete string and trimmer stair consists of two landings separated by eight treads; the flight extends between two 150mm concrete block walls. Sketch a vertical longitudinal section through the stair and identify all elements/components and reinforcements. (12 marks)

QUESTION # 6

- a) The roof element consists of the structure and covering; explain the function of these two components. (4 marks)
- b) The vertical forces acting on a roof can result in the spreading of rafter feet at their junction with walls. Using annotated sketches to illustrate show the damage that can be done to walls and give two explanations of how this can be prevented. Also in St. Lucian construction what component aids in preventing such damage. (11 marks)
- c) Sketch and annotate the following:
i) Collar roof, ii) Lean-to roof, iii) Gable roof, iv) Gusset plate, v) Spliced joint (10 marks)

END OF PAPER

