

SIR ARTHUR LEWIS COMMUNITY COLLEGE
ENGINEERING AND THE CIRCULAR ECONOMY
ACADEMIC YEAR (2024/2025) - SEMESTER ONE
END OF SEMESTER EXAMINATION

TUTOR (S)	:	Mr. Stephen Auguste, Mr. O'Brien Richards
PROGRAMME TITLE	:	Architecture Technology, Construction Engineering & Quantity Surveying - AD
COURSE TITLE	:	Building Technology III
COURSE CODE	:	BLT 212
LEVEL	:	Associate Degree / Year Two
PAPER	:	Paper 1
DATE	:	Monday, 16 th December 2024
COMMENCEMENT TIME	:	1:00 p.m.
DURATION	:	2 hours
INVIGILATOR (S)	:	N. Sargusingh, (Chief); T. Mathurin
ROOM (S)	:	TRB-02-04

GENERAL INFORMATION AND INSTRUCTIONS

- **This paper consists of one (1) section.**
- **Section A** has five (5) questions. You are required to answer **four (4)** questions using the answer sheet provided. Each question is worth 25 marks.
- Students must sign **IN** and **OUT** on the examination class list.
- Students must **not** write their names on their answer sheets, only their **ID number**.
- Students are reminded to read **all** questions and instructions in each section very carefully.
- Please number your responses accordingly.
- **Note: Bags, Books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.**
- **All cell phones must be turned off during the exam.**

DO NOT TURN THIS COVER SHEET UNTIL

YOU ARE TOLD TO DO SO!!!

SECTION A

INSTRUCTIONS: Choose and complete **FOUR (4)** questions.

Question 1

A commercial building with a suspended concrete floor slab has to be renovated. Its foundation type is reinforced concrete columns and pad. There are no other structures close to the building to be renovated. Some of the works included:

- Shoring of the building,
- Replacement of one of the failed reinforced concrete columns and its foundation pad footing at the north end of the building.

A) Using well labeled sketches, explain the type of shoring that will be used before underpinning begins.

(10marks)

B) Using well labeled sketches, explain the steps involved in this underpinning activity.

(15marks)

Question 2

The retaining structure supporting one side of a private access road to a residential building is showing signs of failure. After investigating the site, it was noted that the retaining structure will need to be replaced. Your project manager has asked you to design a **Retaining Structure** as part of the solution.

A) With the aid of labeled diagrams, describe the differences between the **cantilevered** and **gravity** retaining walls.

(15 marks)

B) Explain the advantages disadvantages of the cantilevered and gravity retaining walls.

(10 marks)

Question 3

Your project manager has asked you to design a gabion retaining structure to be constructed alongside a road in an area that is prone to landslides and high levels of saturation.

A) Using well labeled sketches, explain how the gabion basket wall is constructed.

(15marks)

B) Explain the advantages and disadvantages of using the gabion basket wall chosen as a retaining structure.

(10 marks)

Question 4

A three story residential block located alongside Jeremie Street in Castries is to be demolished.

- A) Considering the location and other important factors, prepare a site investigation check list itemizing the site conditions that should be assessed. **(15 marks)**
- B) Create a demolition plan tailored to this specific site. The plan should include the sequence of activities, the manner in which those activities must take place and the suggested use of equipment, to ensure the safe and successful execution of the demolition exercise. **(10 marks)**

Question 5

Underpinning is risky business. It can be carried out for intermittent and continuous foundation systems.

- A) Describe, with the use of sketches, the process of underpinning using the pretest method. **(15 marks)**
- B) For intermittent foundations, list and describe one suitable method of supporting the structure temporarily which can typically be used during the underpinning process. **(10 marks)**

END OF EXAMINATION.