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	**:**	**Architectural Technology, Construction Engineering & Quantity Surveying - AD**
COURSE TITLE	**:**	**Building Technology I**
COURSE CODE	**:**	**BLT 120**
LEVEL	**:**	**Associate Degree / Year One**
DATE	**:**	**Thursday, 19th December 2024**
COMMENCEMENT TIME	**:**	**9:00 a.m.**
DURATION	**:**	**2 hours**
INVIGILATOR (S)	**:**	**K. Cenac-Hippolyte, (Chief); D. Persad; M-L. Felix; A. Alcindor**
ROOM (S)	**:**	**LFT-1R-05**

GENERAL INFORMATION AND INSTRUCTIONS

- **This paper consists of two sections. Sections A and B.**
- **Section A** consists of Five (5) questions. Answer any **THREE (3)** questions from this section. Each question is worth 25 marks.
- **Section B** consists of Twenty- Five (25) Multiple Choice Questions. Each question is worth one (1) mark. Use the answer sheet provided.
- 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: Answer any **THREE** questions from this section.

Question 1

A) Draw and label a section of the strip footing foundation along with the reinforced concrete floor slab on grade. **[14 marks]**

B) What is the function of the transverse bars in the strip footing? **[6 marks]**

Question 2

A) Draw and label a section of the timber ground floor **[14 marks]**

B) Explain the steps taken to prevent ground water from reaching the timber members in the timber ground floor. **[6 marks]**

Question 3

A) Draw and label a typical section of a reinforced concrete column and pad foundation footing. **[14 marks]**

B) Why does the architect/engineer need to know the load-bearing capacity of the soil layer where the foundation of a building will be placed? **[6 marks]**

Question 4

A) Draw and label a section of the solid raft foundation **[14 marks]**

B) State the advantages of the beam and slab raft over the solid raft foundation. **[6 marks]**

Question 5

A) Draw and label the typical eave detail of a gable roof **[14 marks]**

B) What are the functional requirements of the roof in a building? **[6 marks]**

SECTION B

INSTRUCTIONS: Answer **ALL** questions on the answer sheet provided.

1. Controlling the internal environment of a building is dependent on:
   A) External weather conditions
   B) Community and individual culture
   C) Activity within the space
   D) All of the above

2. When designing a building with a pad foundation, which of the following is a square grid most suited for?
   A) A two-way slab
   B) A one-way slab
   C) Both
   D) None of the above

3. Concrete as a building material is weak in
   A) Cracking
   B) Tension
   C) Compression
   D) Settlement

4. What is the main role of the structural engineer on site?
   A) To control cost
   B) To determine the aesthetic appearance of the building?
   C) To supervise the construction of structural components
   D) To monitor the labourers.

5. What are the documents required when pricing and bidding for a project?
   A) Letter of instructions
   B) Qualification of the Architect
   C) Working drawings and completion date
   D) Working drawings and un-priced bills of quantities.

6. Which of the following can be used to categorize a building?
   A) Its use as residential& commercial
   B) Construction materials used
   C) Its scale
   D) All of the above

7. Preliminary site works can be defined as:
   A) The placement of temporary buildings on site
   B) The organizing of equipment and materials on site
   C) All preparatory operations of the site for the commencement of construction
   D) All of the above

8. Construction project programmes can take the form of:
   A) A bar chart and network diagram
   B) A line diagram only
   C) A pie chart and an line diagram
   D) An arrow diagram and a pie chart

9. The required depth of the foundation system will be the findings of the:
   A) Corporate social responsibility
   B) Testing of sub-soil
   C) Environmental impact assessment
   D) Tendering process

10. What is the main purpose of the foundation system?
   A) To receive all loads and safely transfer the same to the subsoil.
   B) To prevent the public from wandering on the site
   C) To help the soil
   D) All of the above

11. In a concrete mix 1:2:4, what does the value “2” represent?
   A) The concrete
   B) The cement
   C) Coarse Aggregate
   D) Fine Aggregate

12. Advantages of using a prefabricated site office building as compared to one built from scratch are:
   A) Re-use
   B) Ease of erection and dismantling
   C) Long term cost saving
   D) All of the above

13. In timber wall construction, the upper most member of the wall is called the?
   A) The ring beam
   B) Head plate
   C) Stud
   D) The sole plate.

14. Some of the instruments used in setting out a building are:
   A) Measuring tape
   B) Builder’s square
   C) Wooden pegs
   D) All of the above

15. Sir Arthur Lewis is best known for work done in the field of
   A) Architecture
   B) engineering
   C) economics
   D) quantity surveying

16. For concrete to cure properly:
   A) It should be exposed to the sun
   B) It must have reinforcement
   C) It should be kept moist
   D) Test cubes must be taken

17. The type of material suitable for d.p.c. is
   A) polythene
   B) gypsum board
   C) drywall sheeting
   D) woolmanized pitch pine.

18. For which of the following reason is timbering generally used?
    A) To protect workmen from the water table
    B) To prevent side of excavation from collapse
    C) To prevent entry of rain water
    D) All of the above

19. In-situ concrete is concrete:
    A) poured within a formwork
    B) That has developed full strength
    C) Poured around reinforcement
    D) Poured in its final position

20. Clay soil is generally not suitable for supporting a foundation because:
    A) It is too close to the surface
    B) It expands and contracts with seasonal and weather changes.
    C) Its load-bearing capacity is too high
    D) It is above the level of the water table

21. Why are soil investigations carried out before a building is designed?
    A) To design the most appropriate floor
    B) To design the most appropriate walls
    C) To design the most appropriate foundation system
    D) To design the most appropriate roofs.

22. Settlement occurs when the load of a building:
    A) Exceeds the bearing capacity of the ground
    B) Was not tested in the lab
    C) Is lower than the settlement allowed
    D) Is measured in pounds per square feet

23. The place where soil samples are tested is called:
    A) Trial pit lab
    B) Settlement lab
    C) Soil compaction tests
    D) Soil and materials lab

24. The bearing capacity of the ground can be defined as:
    A) The ability of the ground to carry load
    B) The depth of the water table in the ground
    C) The depth at which clay soil can be found
    D) The ability of the ground to withstand water pressure

25. When are raft foundations normally used?
    A) On solid ground with high load bearing capacity
    B) Where clay soil goes as deep as 600mm
    C) Where the rocks can be found 900mm below the surface
    D) On poor soils where the foundation is expected to accommodate small settlement

END OF EXAMINATION.