

SIR ARTHUR LEWIS COMMUNITY COLLEGE
FACULTY OF ENGINEERING
ACADEMIC YEAR (2024/2025) - SEMESTER TWO
END OF SEMESTER EXAMINATION

LECTURER(S) : **Mr O'Brien Richards**
PROGRAMME TITLE : **Carpentry and Joinery – Foundations**
COURSE TITLE : **Building Construction IB**
COURSE CODE : **BLT117**
LEVEL : **Certificate/Year Ones**
PAPER : **One**
DATE : **Friday 9th May, 2025**
COMMENCEMENT TIME : **9:00 a.m.**
DURATION : **Two (2) hours**
INVIGILATOR(S) : **E. Ottley (Chief), Y.G-Contino,
T. Warner, K. Frederick, R. Frederick**
ROOM(S) : **LFT-1R-05**

GENERAL INFORMATION AND INSTRUCTIONS

- This paper consists of Two (2) Sections. All questions must be attempted on the foolscap provided.
- **Section A** contains Thirty (30) Multiple Choice Questions. You are required to answer **all** questions. One mark is awarded for each correct answer.
- **Section B** contains Four (4) Long Answer Questions. You are required to answer **ANY TWO (2)** questions. Marks are awarded accordingly.
- 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.

DO NOT TURN THIS COVER SHEET UNTIL
YOU ARE TOLD TO DO SO!!!

SECTION A: Multiple Choice Questions

Answer all questions. (One mark will be awarded for each correct answer)

1. A building can be best defined as:
 - A) A structure that provides a shelter for animals
 - B) A structure that provides shelter for man
 - C) A structure that provides shelter for man and his belongings
 - D) A structure that provides shelter for plants
2. Three basic types of structures that are used when designing a building are:
 - A) Surface, solid and air
 - B) Surface, skeletal and solid
 - C) Skeletal, Columns & beams and solid
 - D) Solid, walls and Columns & beams
3. 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
4. Which of the following characteristics represent the functional requirements of internal walls/partitions?
 - A) Sound insulation
 - B) Strength
 - C) Stability
 - D) All of the above
5. Some of the requirements that should be considered in the design of a building are:
 - A) Thermal insulation
 - B) Strength and stability
 - C) Weather resistance
 - D) All of the above
6. Cellular construction is an example of:
 - A) A surface structure
 - B) A solid Structure
 - C) A skeletal structure
 - D) None of the above
7. 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
8. Concrete as a building material is weak in
 - A) Cracking
 - B) Tension
 - C) Compression
 - D) Settlement

9. The lap of a stepped foundation footing is:
- A) 1m
 - B) Thickness of the base
 - C) 300 mm
 - D) 30mm
10. The horizontal part of a step is called the:
- A) The step
 - B) The footer
 - C) The foot board
 - D) The tread
11. What is the main role of a door?
- A) To seal a doorway?
 - B) To allow ingress and egress?
 - C) To offer security
 - D) All of the above
12. 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
13. An access road is one that:
- A) Provides access to a site for the coming and going of personnel
 - B) Provides access to a site for the delivery of materials and equipment
 - C) Provides access to a site for the coming and going of personnel and equipment
 - D) All of the above
14. 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
15. In a reinforced concrete slab on grade, what component prevents the upward movement of moisture through the slab:
- A) The Hardcore fill
 - B) The sand blinding
 - C) The damp proof membrane (DPM)
 - D) Water stop valve.
16. 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
17. What plan does the Carpenter use to organize the roof members?
- A) Roof plan
 - B) Organisation plan
 - C) Ceiling plan
 - D) Floor plan

18. In doors, the upper most horizontal member of the door is called the?
- A) The door top
 - B) Head plate
 - C) Top rail
 - D) The lintel
19. What does the term “Setting out a building” mean?
- A) To mark off the position of a dam on the ground
 - B) To mark off the position of a building on the sea
 - C) To mark off the position of a building on the ground
 - D) To mark off the position of a dam on the sea
20. 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
21. 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
22. 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
23. The type of material suitable for D.P.M. is
- A) polythene
 - B) gypsum board
 - C) drywall sheeting
 - D) womanized pitch pine.
24. The reason for which foundation trenches are excavated is for:
- A) The siting of the foundation of a structure
 - B) The collection of soil samples
 - C) To identify the water table
 - D) All of the above
25. 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
26. 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

27. The water table is described as:
- A) A pit in the ground whose base is higher than that of the actual excavation that allows for the collection of ground water
 - B) A pit in the ground whose base is lower than that of the actual excavation that allows for the collection of ground water
 - C) A pit in the ground whose base is mid-way than that of the actual excavation that allows for the collection of ground water
 - D) None of the above.
28. 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 low
 - D) It is above the level of the water table
29. 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.
30. 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

SECTION C: Long Answer Questions

Answer any TWO (2) questions. (Marks are awarded accordingly)

Question 1

List Five (5) of the functional requirements of a foundation system [10 marks]

Draw and label each of the following:-

- A) Raft foundations [5 marks]
- B) Stepped Strip Foundation [5 marks]
- C) Pad Foundation footing [5 marks]

Question 2

- A) What is the function of the layer of sand blinding placed on top of the hardcore layer under a floor slab on grade? [4 marks]
- B) What is the functional requirement of the DPM under a floor slab on grade? [7 marks]
- C) Draw and label a section of the concrete strip foundation footing along with the Reinforced concrete slab on grade. [14 marks]

Question 3

- A) What is the name and function of the 'special plate' at the joints of a roof truss? [4 marks]
- B) What are the functional requirements expected of a roof? [6 marks]
- C) Sketch the detail at the eaves for flush eaves. [8 marks]
- D) Draw and label the typical roof truss and details for a roof span up to 8.0m [7 marks]

Question 4

With the following data, Calculate the Tread, Riser, number of treads, number of risers, and total run of the staircase:-

- A) Straight Flight of stairs with 900mm wide landing.
- B) Total rise 2.8 m [25 marks]

END OF EXAMINATION!!!