



FACULTY OF ENGINEERING
END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: BACHELOR OF CIVIL ENGINEERING

YEAR/SEM: YEAR 3/SEMESTER 2

COURSE CODE: BCE3204

NAME: CONSTRUCTION TECHNOLOGY III - BCE 3

DATE: 2025-04-17

TIME: 2:00-5:00PM

INSTRUCTIONS TO CANDIDATES:

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

DO NOT WRITE ANYTHING ON THE QUESTION PAPER

Section A This section consists of four (4) questions in total each carrying 25 marks, you are expected to attempt any two (2) questions for full score from this section.

Question 1:

- a) Explain what temporary works are in civil engineering construction works? Also, discuss any three factors to be considered in the design of temporary works. **(05 Marks)**
- b) With the aid of illustrations, describe the following temporary works in civil engineering works. **(20 Marks)**
 - i) Timbering
 - ii) Formwork
 - iii) Scaffolding
 - iv) Dewatering

Question 2:

- a) The major purpose of stairs, escalators, and ramps is for access to upper floors and inclusivity of building construction. Using illustrations where applicable, briefly describe each of the three accesses mentioned **(09 Marks)**
- b) Discuss the various types of stairs in modern high-rise constructions; you may illustrate **(16 Marks)**

Question 3:

- a) The following are the elemental components of a typical traditional door: Top rail, Mullion, Panel, Stile, Lock rail, Bottom rail; sketch and label these parts on such a typical door. **(05 Marks)**
- b) Briefly explain the term “Door Hardware” in a traditional door design. **(03 Marks)**
- c) Outline any five (5) common door hardware in door design. **(05 Marks)**
- d) Window and Door schedules must be elaborate in any genuine building design; outline the core reasons for including windows/doors schedule in design, also explain the key information that must be detailed in the window/door schedule. **(12 Marks)**

Question 4:

For a 2-storey office building construction site in a relatively busy town center,

- a) sketch a typical site layout considerate of all key aspects of a given site of this nature, such as site boundaries, material stockpile, storage area, waste disposal, workers rest shed, site access, and a public rest square at the neighborhood of the site. **(20 Marks)**
- b) Justify your proposed site layout. **(05 Marks)**

Section B This section similarly contains four (4) questions in total all of which carry 25 marks, attempt any two (2) questions for full score from this section.

Question 1:

- a) Describe some specific construction requirements to be critically evaluated/considered in the construction; (Use clear illustrations in your attempt) **(16 Marks)**
 - i) Bridges,
 - ii) Dams,
 - iii) Off shore structures and
 - iv) Tunnels.
- b) For any three of the above structures, explain recent technological advances in its infrastructure development. **(09 Marks)**

Question 2:

- a) Why would one employ use of mechanical plants in construction works? **(05 Marks)**
- b) Describe any five major mechanical plants used in large scale civil engineering construction projects **(15 Marks)**
- c) Outline the key interventions that can be adopted to maximize productivity from mechanical plants. **(05 Marks)**

Question 3:

- a) Using examples where applicable, describe the following terms; **(08 Marks)**
 - i) Maintenance
 - ii) Defects
 - iii) Repair
 - iv) Protection
- b) Explain any six (6) defects potentially suffered by Reinforced concrete structures **(12 Marks)**
- c) Suggest possible remedies for any five (5) of the defects above **(05 Marks)**

Question 4:

- a) Describe any eight (8) major requirements normally considered for submission of a building plan to an approving authority. You may describe in relation to a context and specific examples of your choice. **(16 Marks)**
- b) Write short notes on; Primary and Secondary Investigation by the consultants and the contractor also, outline the main issues that each of the two parties should always pay attention to during these exercises. **(09 Marks)**