



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022**

COURSE NAME : TEMPORARY CONSTRUCTION WORKS

COURSE CODE : BNC31603

PROGRAMME CODE : BNC

EXAMINATION DATE : JULY 2022

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION

1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION IS AN **ONLINE ASSESSMENT AND CONDUCTED VIA OPEN BOOK**



THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** In order to form any concrete structural member, formwork is used to place wet concrete until it preserves its shape, size, and location.
- (a) List **FIVE (5)** considerations based on formwork economics that should be taken into account to reduce the cost of formwork for concrete structures. (5 marks)
 - (b) Cost of formwork plays a significant role in the cost of concrete. It varies from 30% to 40% of the cost of concrete in ordinary structures. Discuss **FOUR (4)** major components contributing to cost of formwork. (4 marks)
 - (c) You've been assigned the task of deciding the material type of formwork required to construct a single-story bungalow house. Suggest a suitable material type of formwork for this project, along with a justification to support your decision. (10 marks)
 - (d) As an engineering technologist, recommend the best technique for constructing a formwork that will result in a higher-quality concrete structure. (6 marks)
- Q2** It becomes vital to have some sorts of temporary structures or supports to proceed with the work in the usual operations of a building construction.
- (a) Identify scaffolding in the construction industry. (5 marks)
 - (b) Scaffolding comes in a variety of shapes and sizes for construction works. With the aid of a sketch, suggest and explain a type of scaffolding that is suited for brick work. (10 marks)
 - (c) If parallel walls have become unsafe as a result of the removal or collapse of the intermediate building, and these walls need to be rebuilt without demolishing the existing wall, as an engineering technologist, propose the appropriate shoring to solve this problem. Give reasons and criteria for the shoring you've chosen. (10 marks)
- Q3** Any man-made cut, cavity, or depression in the earth's surface formed by earth removal is known as an excavation.
- (a) Explain what distinguishes a trench from a bulk excavation. (2 marks)
 - (b) Contractors might begin learning about the soil, dirt, and clay at the beginning of excavation to see if they expect any challenges or problems. Unstable soil is a prevalent issue. Explain why soil instability occurs during excavation.

(6 marks)

(c) Identify and discuss **FOUR (4)** related excavation problems that should be considered before conducting excavation work as a technology engineer on a construction site.

(8 marks)

(d) Pre-excavation requirements must comply with industrial health and safety regulations or a registered professional engineer's recommendation. Clarify the requirements for the pre-excavation work that must be followed.

(9 marks)

Q4 Lifting gears are very crucial in the lifting process. Lifting may fail if there is insufficient knowledge or a poor choice is made, resulting in accidents.

(a) Give a definition of rigging and slinging.

(4 marks)

(b) Define the wire ropes with the aid of a sketch.

(6 marks)

(c) Differentiate **THREE (3)** advantages of Fiber Rope and Synthetic Fiber Rope.

(6 marks)

(d) A cofferdam is a temporary structure that prevents water and soil out of the excavation where a bridge pier or other structure is being constructed. Since employees would be exposed to the risk of flooding and collapse during cofferdam building, safety is a top priority. Prepare the safety requirements for a cofferdam construction as an engineering technologist.

(9 marks)

– END OF QUESTIONS –