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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
(TAKE HOME)  
SEMESTER I  
SESSION 2020/2021**

COURSE NAME : TEMPORARY CONSTRUCTION WORKS  
COURSE CODE : BNC31603  
PROGRAMME CODE : BNC  
EXAMINATION DATE : JANUARY / FEBRUARY 2021  
DURATION : 2 HOURS 30 MINUTES  
INSTRUCTION : ANSWERS ALL QUESTIONS  
OPEN BOOK EXAMINATION

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

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**TERBUKA**

- Q1** The main function of formwork is to place wet concrete until it retains its shape, size and position in order to form any concrete structure member.
- (a) In order to reduce the cost of formwork for concrete structures, what are the considerations that we should take into account based on formwork economy?  
(7 marks)
  - (b) You have been assigned to determine the type of formwork to build a single storey bungalow house. Suggest a suitable type of formwork for this project with the state the relevant reason for support your suggestion.  
(12 marks)
  - (c) As an engineering technologist, propose the best way to design a formwork that will produce a concrete structure with better quality.  
(6 marks)
- Q2** In the normal activities of a building construction, it becomes necessary to have some types of temporary structures or supports to proceed with the work
- (a) What do you understand about scaffolding in construction?  
(3 marks)
  - (b) There are a few types of scaffolding in construction project. With the aid of a sketch, suggest a type of scaffolding that is suitable for a brick work.  
(12 marks)
  - (c) There is a situation where parallel walls have become unsafe due to the removal or collapse of the intermediate building if these walls need to be rebuilt without demolishing the existing wall, as an engineering technologist, propose the suitable shoring to solve this situation. Give explanations and criteria to the chosen shoring.  
(10 marks)
- Q3** An excavation is any man-made cut, cavity or depression in the earth's surface, formed by earth removal.
- (a) What is the difference between a trench and a bulk excavation?  
(2 marks)
  - (b) At the start of excavation, contractors can start to learn about the soil, dirt, and clay, and whether or not they foresee running into problems or obstacles. One common problem is unstable soil. Describe the main cause of soil instability in excavation.  
(6 marks)
  - (c) As a technology engineer on a construction site in performing excavation work, identify **TWO (2)** the related problem with excavation should be considered before doing the work.  
(8 marks)

- (d) Pre Excavation requirement must follow the industrial health and safety regulation or the recommendation from a registered professional engineer. Discriminate the requirements that need to be followed for the pre excavation work.

(9 marks)

**Q4** A cofferdam is a temporary structure designed to keep water and soil out of the excavation in which a bridge pier or other structure is built.

- (a) As a technological engineer, your company has been tasked to produce a construction cofferdam working method to build a pier for a bridge project. Propose a relevant cofferdam construction sequence work.

(17 marks)

- (b) In cofferdam construction, safety is a paramount concern, since workers will be exposed to the hazard of flooding and collapse. As an engineering technologist, prepare the safety requirements of a cofferdam construction.

(8 marks)

– END OF QUESTIONS –