



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2018/2019**

COURSE NAME : TEMPORARY CONSTRUCTION WORKS  
COURSE CODE : BNC 31603  
PROGRAMME CODE : BNC  
EXAMINATION DATE : JUNE /JULY 2019  
DURATION : 3 HOURS  
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

- Q1** Formwork development has paralleled the growth of concrete construction throughout the 20th century.
- (a) Briefly describe the meaning of formwork. (4 marks)
  - (b) **Figure Q1(b)** shows the drawing of pile cap foundation detail plan for an open laboratory construct by your company.
    - (i) Sketch in detail the design of the F1 and F2 pile cap formwork. (8 marks)
    - (ii) Calculate the numbers material of the plywood and lumber that need to construct the pile cap formwork. (4 marks)
    - (iii) Calculate the overall cost of pile cap formwork and take into account the percentage of loss 10%. (4 marks)
- Q2**
- (a) Explain the use of scaffolding in building works. (3 marks)
  - (b) With the aid of sketch explain and differentiate:
    - (i) Inclined shores (5 marks)
    - (ii) Horizontal shores (5 marks)
  - (c) There is situation that the lower part of a wall has become defective and large openings are to be made in existing wall. As a technologist engineer, propose the suitable shoring to solve this situation and explanations of points to be noted. (7 marks)
- Q3**
- (a) Define the term excavation and trench (2 marks)
  - (b) Sketch and explain in details **THREE (3)** types of protective system in excavation works. (9 marks)
  - (c) Pre-excavation requirement must follow according to industrial health and safety regulation or registered professional engineer. Point out **NINE (9)** of requirements that need to follow for the pre excavation work. (9 marks)

- Q4** Lifting gears play an important part in the lifting operation. If there is insufficient knowledge or a wrong choice is made, lifting may fail and accidents may result.
- (a) State the definitions for the following term.
    - (i) Rigging (2 marks)
    - (ii) Sling (2 marks)
  - (b) With the aid of a sketch, explain about the wire ropes (6 marks)
  - (c) With the aid of a sketch, describe **FIVE (5)** type of flat webbing or round synthetic sling. (10 marks)
- Q5** 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) List **THREE (3)** factors that influence the type of cofferdam in a construction. (3 marks)
  - (b) You as a technologist engineer have been tasked by your company to produce a construction cofferdam working method to build a pier for a bridge project, propose a cofferdam construction sequence work. (17 marks)

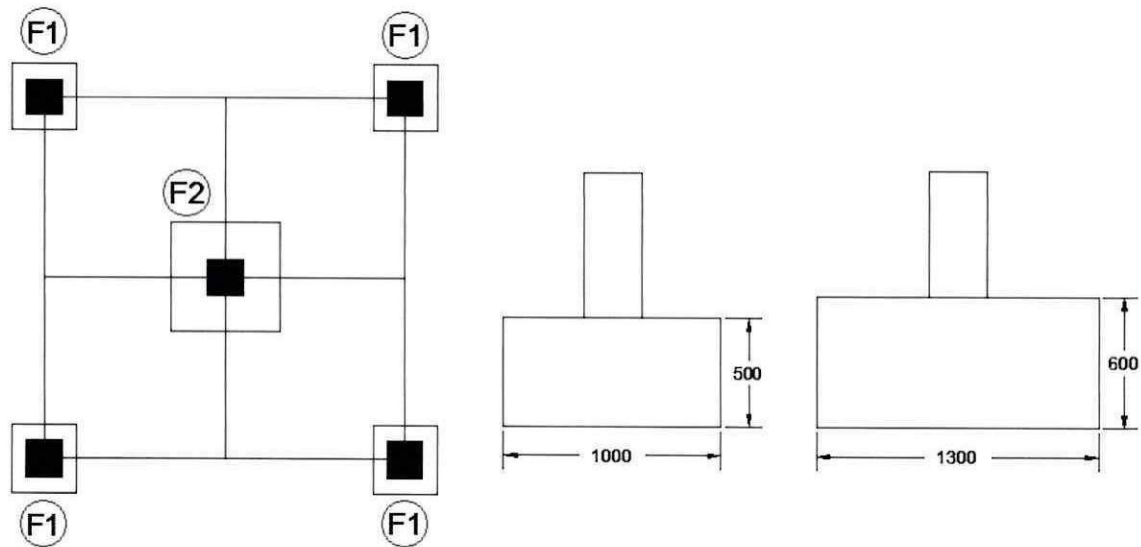
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PILE CAP SCHEDULE			
NO.	PILE CAP NAME	SIZE (mm)	NO. OF PILE CAP
01	F1	1000 x 1000 x 500	4
02	F2	1300 x 1300 x 600	1

Note : Plywood Size = 1200 mm x 2400 mm x 10mm (RM50.00)  
 Lumber Size = 25mm x 50mm x 3000mm (RM20.00)

**Figure Q1(b): Pile Cap Foundation Detail Plan**