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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020**

COURSE NAME : CONSTRUCTION ENGINEERING
COURSE CODE : BFC21002
PROGRAMME CODE : BFF
EXAMINATION DATE : JULY 2020
DURATION : 4 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

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TERBUKA

- Q1** A new construction project is to be developed at Sri Gading. Before construction of the buildings starts, several stages of site investigation and earth works are to be made.
- (a) List **FIVE (5)** key factors to achieve a successful earthwork operations. (5 marks)
 - (b) Illustrate with details **TWO (2)** principal methods of soil investigation. (10 marks)
 - (c) Explain in sequence the steps for a basic method of cut and fill for the construction project. Provide suitable sketches to support your explanation. (10 marks)
- Q2** You have been assigned to select the most suitable foundation system for a high rise building to be built over low bearing soil.
- (a) Explain types of foundation and its main functions. (8 marks)
 - (b) Develop the selection criteria of the selected foundation suitable for this project. Foundation. provide sketched to support your answer. (7 marks)
 - (c) Illustrate and describe the installation process of bore piles. (10 marks)
- Q3**
- (a) As an engineer on site you will be required to make an inspection of column before concreting work. Evaluate **FIVE (5)** procedure of column inspections. (10 marks)
 - (b) Develop method of construction for square column as shown in **Figure Q3 (b)**. (15 marks)
- Q4** A culvert is a structure that allows water to flow under a road, railroad or similar obstruction from one side to the other side. It is typically embedded and surrounded by soil. You are appointed as Site Engineer for a new proposed cast in-situ 3m x 3m single cell box culvert. Therefore, a strategic planning for the successful of the project is required in term of practicality and economic outcome.
- (a) Interpret and sketch **TWO (2)** types of culvert other than box culvert. (5 marks)

- (b) Produce and sketch a typical construction sequence for cast in situ box culvert based on **Figure Q4 (b)** until sub grade finish level.

(20 marks)

– END OF QUESTIONS –

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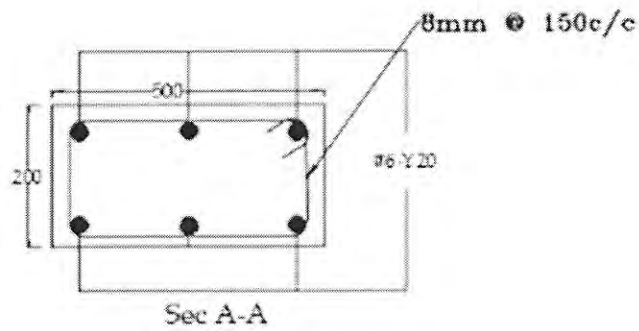
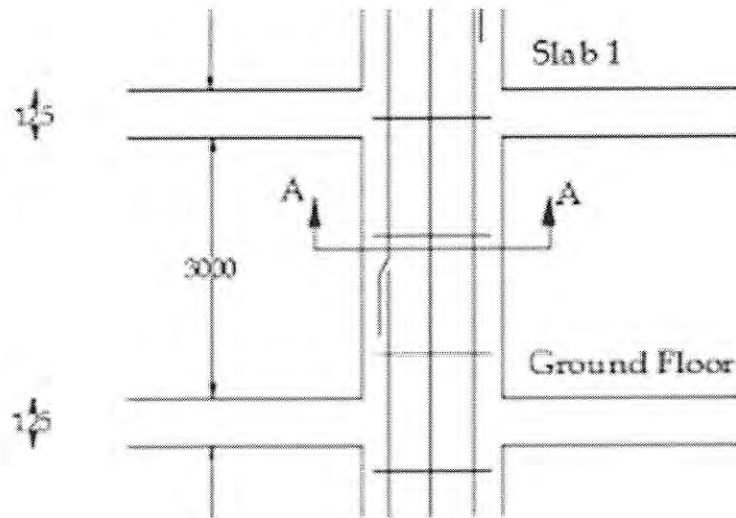


FIGURE Q3 (b)

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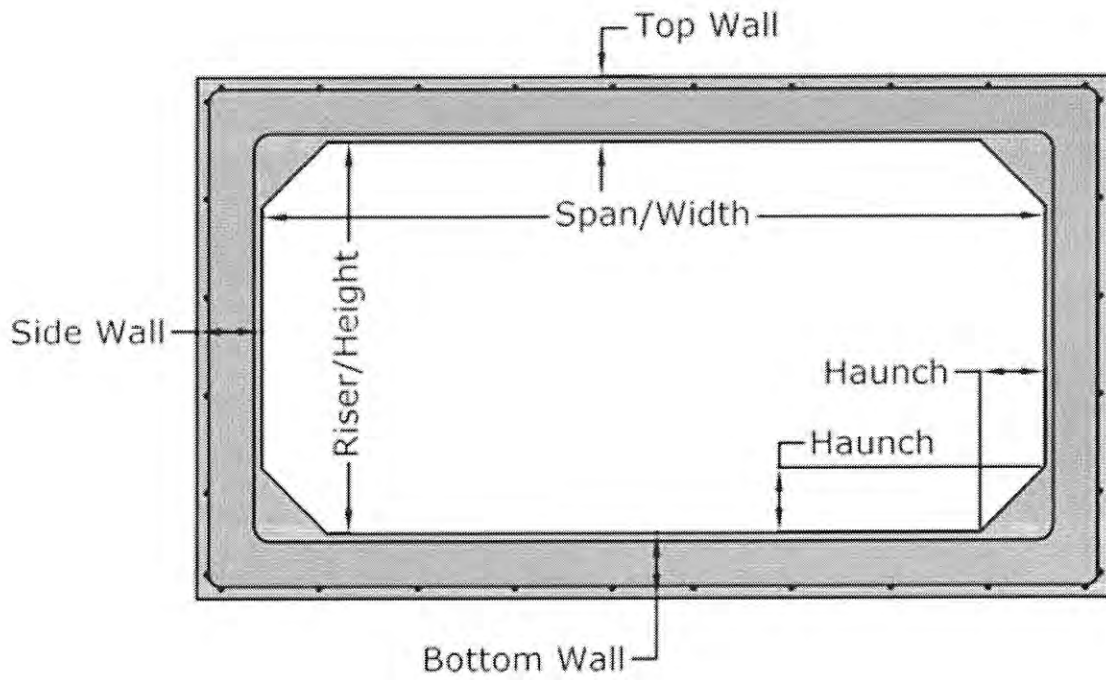


FIGURE Q4 (b)