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**UTHM**  
Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2019/2020**

COURSE NAME : CONSTRUCTION ENGINEERING  
COURSE CODE : BFC21002  
PROGRAMME CODE : BFF  
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020  
DURATION : 2 HOURS  
INSTRUCTION : 1) ANSWER ALL QUESTIONS  
2) DO NOT BRING THIS QUESTION PAPER OUT OF THE EXAMINATION HALL

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

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- Q1** Earthworks are engineering works created through the moving or processing parts of the earth's surface involving quantities of soil or unformed rock. A construction project about to be initiated at the east part of Parit Raja.
- (a) List **FIVE (5)** parameters to be checked on before commencing the site clearing works. (5 marks)
  - (b) With the aid of sketches, explain in detail about compaction and sloping. (10 marks)
  - (c) Explain the process of cut and fill for the construction project. Refer to **FIGURE Q1 (c)** (10 marks)
- Q2** Development and Property Management Office of UTHM is preparing a proposal for the construction of a new six-storey building for Faculty of Civil and Environmental Engineering on a piece of land where soil investigation revealed that the layer of hard rock bed is 30 meters below existing ground level.
- (a) Give **TWO (2)** factors that need to be considered in selection of foundation type. (4 marks)
  - (b) Propose the most suitable foundation system for the building. (3 marks)
  - (c) Justify **TWO (2)** reasons why the particular foundation system is chosen. (4 marks)
  - (d) Sketch the proposed foundation system. (4 marks)
  - (e) Illustrate with sketches **ONE (1)** equipment or machinery for foundation work. (3 marks)
  - (f) Construct a method of statement for the foundation construction process. (7 marks)

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- Q3** Recently, the residential houses in Malaysia have been designed with concrete flat roof due to economical expenditure. However, due to hot and humid conditions in equatorial climate, maintenance work to concrete flat roofs has increased significantly.
- (a) List **FIVE (5)** common defects occurred in concrete flat roof for residential houses in Malaysia. (5 marks)
  - (b) Discuss **FIVE (5)** functional requirements for roof in building. (10 marks)
  - (c) Propose and sketch a suitable design of roof structures that might withstand the equatorial climate in Malaysia. (5 marks)
  - (d) The components such as rafter, ridge, collar tie, wind brace, sheet, and eaves are required in constructing roof truss. Describe all these components by showing the roof truss layout. (5 marks)
- Q4** You are appointed as Project Manager for a new residential house project in rural area located 50km from the town of Parit Sulong, Johor. Refer to **FIGURE Q4**
- (a) Propose site organisational chart of staff who will be responsible at site. (5 marks)
  - (b) Provide a strategic planning for the success of the project in term of infrastructure utilities in the site. (10 marks)
  - (c) Prepare the procedure required for utilities construction from commencement to completion. (10 marks)

– END OF QUESTIONS –

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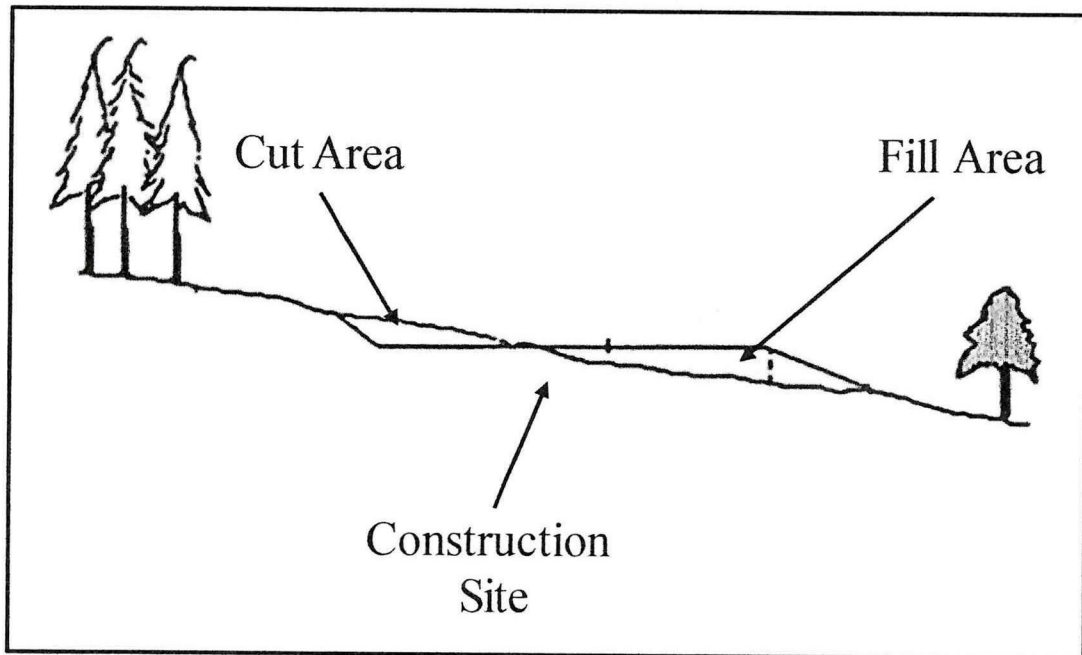
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**FIGURE Q1 (c)**

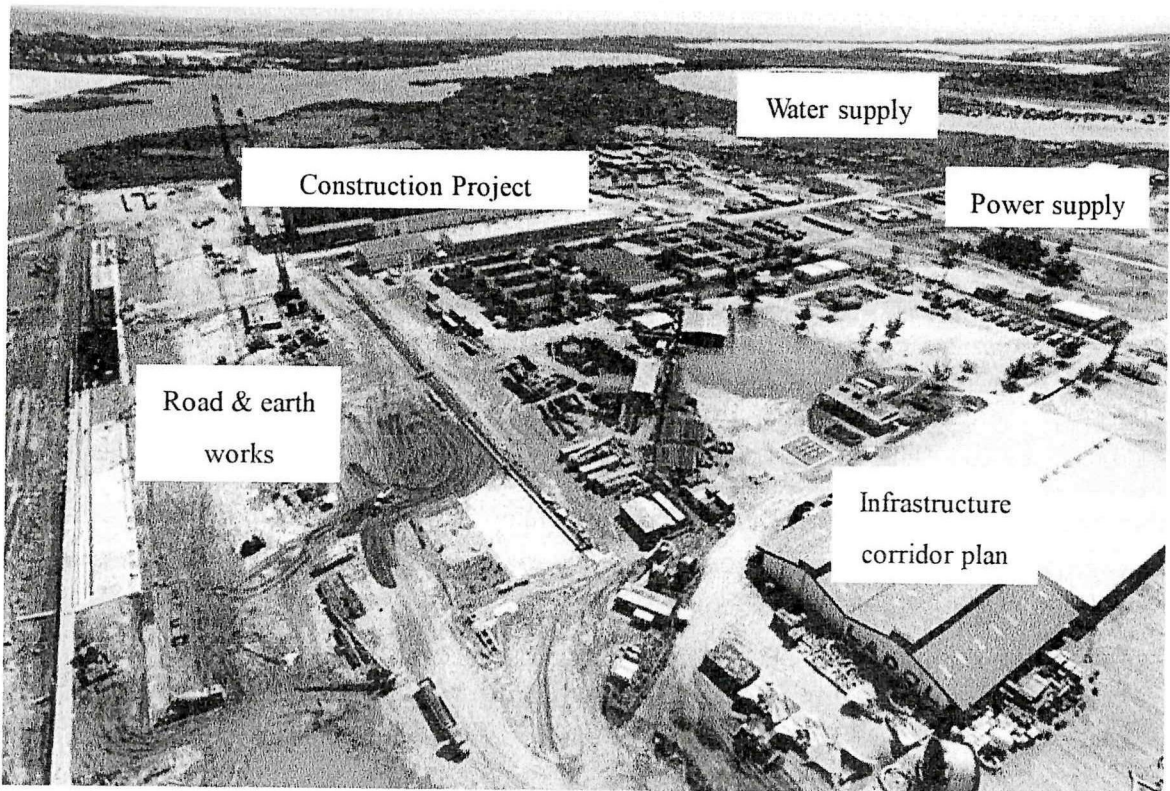
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**FIGURE Q 4**

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