



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017**

COURSE NAME : CONSTRUCTION EQUIPMENT
COURSE CODE : BPD 21602
PROGRAMME CODE : BPC
EXAMINATION DATE : JUNE 2017
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

- Q1** The function of compaction equipment is to produce higher density in soil mechanically. The basic forces used in compaction are static weight, impact, kneading, and vibration. The desired level of compaction is best achieved by matching the soil type with its proper compaction method. Other factors must be considered as well, such as compaction specification and job site conditions.
- (a) Discuss an appropriate compactor for cohesive and granular soil compaction. (5 marks)
 - (b) Discuss with the aid of sketches, the complete operation of dynamic compaction for airport project. (10 marks)
 - (c) Soil compaction is a process in which the air space in the soil reduced by the pressure exerted on the soil particles.
Describe the importance of the work of soil compaction in a construction project. (5 marks)

- Q2** The operations of the construction work can be carried out by using one or more combination of equipment. As a result, the selection of the best equipment will ensure that the project will be completed within stipulated time as per specification and minimum cost.
- (a) Discuss **TWO (2)** selection factors of construction equipment. (5 marks)
 - (b) Discuss **FOUR (4)** types of equipment operation in the construction. (8 marks)
 - (c) Differentiate with the examples, the types of maintenance of construction equipment in a construction project. (12 marks)

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Q3 Excavators are large backhoes used for heavy construction. An excavator is an engineering vehicle consisting of a backhoe and cab mounted on a pivot (a rotating platform) with tracks or wheels mountings.

- (a) Explain the characteristic of soil that influence to the difficulty of excavation work.
(8 marks)
- (b) Discuss with the aid of sketches, **THREE (3)** strong structural members of hydraulic excavator.
(6 marks)
- (c) Discuss **FOUR (4)** types of excavator based on their functions.
(16 marks)

Q4 (a) Hauler is construction equipment mainly used to move materials and some of the machine can carry more than 300 tones of materials. However, the material weight than a hauler could attain was limited by practical considerations such as efficiency, maneuverability and safety. Dump trucks, lorry, low loader, and dumper are examples of hauler. However, contractors occasionally used the wrong type of hauler to transport materials in a construction project.

Discuss **TWO (2)** reasons for the wrong usage of hauler amongst contractors.
(5 marks)

(b) Scraper is a large piece of equipment which is used in mining, construction, agriculture and other earthmoving applications.

Analyse **FOUR (4)** phases of operation of the equipment.
(20 marks)

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- END OF QUESTIONS -