



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2013/2014**

COURSE NAME : CONSTRUCTION EQUIPMENT
COURSE CODE : BPD 21602
PROGRAMME : 2 BPC
EXAMINATION DATE : JUNE 2014
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

Please answer **SECTION A** and **SECTION B** in a separate answer booklet.

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

SECTION A

- Q1** UTHM has acquired a new four acres oil palm plantation land for its new buildings. Your company has been appointed as a contractor to do a site clearing and to ensure the land level is ready for construction works. The project existing level is 3000 mm compared to required finish level at 2500 mm. Your company is given three months to complete the works, and will be fined RM 2,500.00/day should it fail to finish on the predetermined time. Prior to works commission, your company must submit a preliminary construction equipment report to UTHM for official permission. The report must include type and number of equipments, equipments' operation, and reason for their selection.

Outline the preliminary construction equipment report for the works.

(25 marks)

- Q2** (a) 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.
- (i) Discuss an appropriate compactor for cohesive and granular soil compaction.
(6 marks)
- (ii) Explain with the aid of sketches, the complete operation of dynamic compaction for airport project.
(8 marks)
- (b) Hauler is construction equipment mainly used to move materials and some of the machine can carry more than 300 tonnes of materials. However, the material weight that a hauler could attain was limited by practical considerations such as efficiency, manoeuvrability 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.

Analyse the reasons for the wrong usage of hauler amongst contractors.

(11 marks)

SECTION B

Q3 Excavator is mainly used for soil excavation, structure demolition, and construction materials lifting.

(a) Explain **FOUR (4)** types of excavator based on their functions. (12 marks)

(b) Explain with the aid of sketches, **THREE (3)** strong structural members of hydraulic excavator. (12 marks)

Q4 (a) Many types of conveyors are used in the construction industry depending on the materials.

(i) Describe the function of idlers, turn pulleys, and take up equipment which is the basic components for belt conveyor. (6 marks)

(ii) Explain **TWO (2)** types of conveyor that can be used to move material of granular consistency. (8 marks)

(b) Analyse the methods to minimize the primary hazards associated with crane operation. (12 marks)

-END OF QUESTION-

