



# MACHAKOS UNIVERSITY

University Examination 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR SECOND TERM EXAMINATION FOR

CERTIFICATE IN BUILDING TECHNOLOGY

SITE AND WORKSHOP MANAGEMENT II AND CONSTRUCTION PLANT

DATE:

TIME:

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**INSTRUCTIONS:**

-This paper consists of TWO sections A and B.

-Answer FIVE questions.

-Answer any TWO questions from section A and any TWO questions from section B

-Answer ONE question from any of the two sections.

**SECTION A:SITE MANAGEMENT**

1. a) List the five main reasons for introducing equipments and machines in a building site. (10 marks)
- b) State five advantages of buying a plant and five advantages of hiring a plant. (10 marks)
2. With aid of drawings show the following documents which are applicable in a building site
  - i) Material transfer form.
  - ii) Material delivery note.
  - iii) Inventory.
  - iv) Advice note. (20 marks)

3. a) Define the term preliminancy items and state three preliminary items that have to be considered before carrying out the works. (12 marks)
- b) Explain how water can be got in a building site. (4 marks)
- c) State two reasons why we need electricity in a site. (4 marks)
4. a) A young contractor intends to build a house for a client. Draw a site plan and indicate the following:
- i) Sand dump.
- ii) Aggregate dumps.
- iii) Building stones dumps.
- iv) Workers Guts.
- iv) Site offices. (12 marks)
- b) List three essential services of a workshop (3 marks)
- c) Briefly explain the term measured type of a contract (5 marks)

#### **SECTION B: CONSTRUCTION**

5. a) State **FOUR** classifications of construction plant. (4 marks)
- b) Determine the output of a construction plant considering the following;
- container holding capacity 1m<sup>3</sup>
- maximum cycles per hour 25
- operator efficiency factor 0.8
- machine efficiency factor 75% (6 marks)
- c) i) State any **TWO** reasons for having a pump on a construction site.
- ii) With the aid of sketches explain how the following equipment works;
- boring auger
- drop hammer. (10 marks)
6. a) i) Explain the operations of a scraper.
- ii) List **SIX** factors that influence the output of a scraper. (9 marks)
- b) i) List **TWO** types of construction plant that compact by;
- i) rolling
- ii) vibration.

- ii) Outline any **THREE** factors affecting compaction. (8 marks)
- c) Explain **THREE** reasons for plant management in a construction site. (3 marks)
- 7. a) Explain the operation of central concrete mixing plant. (6 marks)
- b) Sketch and label a reversing drum mixer. (11 marks)
- c) Distinguish between a pan mixer and a tilting drum mixer. (3 marks)
- 8. a) i) List any **THREE** types of bitumen laying plant.
- ii) With the aid of a sketch explain the operation of any of the bitumen laying plant mentioned in 8(a)(i) above. (10 marks)
- b) Explain the following operations of a low loader transporting plant truck;
  - i) loading
  - ii) hauling
  - iii) discharging. (6 marks)
- c) Describe the following types of plant maintenance;
  - i) corrective
  - ii) preventive
  - iii) planned. (4 marks)