



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING

BCECD 209: CONSTRUCTION PLANTS AND EQUIPMENTS

Date: 27/4/2016

Time: 8:30 – 10:30 AM

INSTRUCTIONS

This paper consists of FIVE questions

Answer question one and other two questions in this paper

1.
 - a) state five factors that affect the productivity of an excavating plant (5 marks)
 - b) Sketch and label the following excavating plants and state two functions of each:-
 - i. Skimmer
 - ii. Dragline (10 marks)
 - c) Discuss the following methods of maintaining plants:-
 - i. Planned maintenance
 - ii. Preventive maintenance (6 marks)
 - d) With an aid of sketch, discuss bulldozer (4 marks)
 - e) Sketch a tandem (5 marks)
2.
 - a) with an aid sketch, discuss back actor and state where it is used (8 marks)
 - b) Using sketches differentiate between a grader and scraper and state where each is used (12 marks)

3. a) Using sketches', differentiate between a hoist and crane (10 marks)
- b) Sketch a gantry and state where it is used (5 marks)
- c) Sketch and label a mobile crane (5 marks)
4. a) The following data was obtained from a manufacturer's specification for a scraper.
- Scraper capacity =10T
- Haulage speed (full) =14Km/hr
- Haulage speed (empty) = 16km/hr
- Loading time = 5min
- Dumping time =1.5 min
- Accelerating /decelerating =0.9min
- If the length of haul road is 6km and the efficiency of the scraper is 95%. Calculate the productivity for 8hr day of the scraper and the number of scrapers required for the project (10 marks)
- b) Sketch any two plants used in compaction (10 marks)
5. a) Describe factor affecting the productivity transporting and lifting plant. (6 marks)
- b) Outline safety precaution to be observed when blasting (8 marks)
- c) Sketch a sheep wheel roller (6 marks)