



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations for 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:

Time:

INSTRUCTIONS:

- *This paper comprises of five questions*
- *Question one is compulsory and carry 30 marks*
- *Answer any other two questions*

- (a) State five factors to consider when selecting of an excavating plant. (5 marks)
 - (b) Sketch and label the following excavating plants and state two functions of each:-
 - (i) Back Actor
 - (ii) face shovel (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 angle dozer (4 marks)
 - (c) Sketch a tandem (5 marks)
- (a) With an aid sketch, discuss scraper and state where it is used. (8 marks)
 - (b) Using sketches differentiate between a gantry and guyed derricks and state where each is used (12 marks)

3. (a) Using sketches, differentiate between a hoist and crane (10 marks)
- (b) Sketch a fork lift 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 = 9T
- Haulage speed (full) = 12Km/hr
- Haulage speed (empty) = 15km/hr
- Loading time = 5min
- Dumping time = 1.5 min
- Accelerating /decelerating = 0.8min
- If the length of haul road is 8km and the efficiency of the scraper is 85%. Calculate the productivity for 9hr day of the scraper and the number of scrapers required for the project (10 marks)
- (b) Sketch any two plants used in concreting (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 tamping board vibrator. (6 marks)