



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING

DIPLOMA IN CIVIL ENGINEERING

EBC 2215: CONSTRUCTION PLANT & EQUIPMENT

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

- *Calculator*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (20 Marks)

- a) Identity **SEVEN** operations requiring construction plant, name **TWO** types of plant for each operation. **(7 marks)**
- b) State the advantages of regular maintenance of plant. **(6 marks)**
- c) Briefly explain preventive maintenance. **(7 marks)**

Question Two (20 Marks)

- a) With the aid of a sketch, describe pan mixer. **(9 marks)**
- b) The following data was available for a scraper of capacity of 12 Tonnes.
- Haul length – 2500m
 - Haul speed (full) – 10km/hr
 - Haul speed (empty) – 20 km/hr
 - Dumping time – 0.8 minutes
 - Loading time – 1.5 minutes
 - Acceleration/Deceleration – 1.0 minutes

Calculate the productivity for a 9 hour day for one scraper and the number of scrapers if the efficiency is 90% **(11 marks)**

Question Three (20 Marks)

- a) (i) State **FOUR** factors determining plant operating costs
- (ii) Explain the two categories of operating costs, listing **FOUR** examples for each. **(10 marks)**
- b) With the aid of sketch, describe the operation of drag-line. **(10 marks)**

Question Four (20 marks)

- a) With the aid of a sketch, describe self supporting tower crane. **(10 marks)**
- b) State the precautions taken:
- i) When using lifting plant
 - ii) When handling misfires after blasting **(10 marks)**

Question Five (20 marks)

- a) Explain **THREE** factors affecting compactive effort of vibrating rollers. **(6 marks)**
- b) (i) State **SIX** factors considered in choosing pile driving plant.
- (ii) With the aid of a sketch, describe the operation of a single acting diesel hammer. **(14 marks)**

