



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 2306 CONSTRUCTION PLANT AND EQUIPMENT

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 22 Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Drawing instruments.

-Scientific calculator

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.

Question One

(a) i).Identify THREE operations requiring construction plant

ii) Name TWO plants for each operation in 1 (a) (i) **(6 marks)**

(b) Briefly describe the following types of maintenance

(i) Servicing and cleaning

ii) Preventive maintenance

iii) planned maintenance **(8 marks)**

(c) Drain laying project was operated for 52 weeks a year, 5 days a week and 9 hours a day. Poor work planning kept the plant idle for 12 weeks. During the remaining time, the excavator could not work because of breakdown for 6 hours each week

Determine:-

i) Operating factor

ii) Serviceability factor

iii) Utilization factor **(6 marks)**

Question Two

(a) State THREE factors affecting the productivity of excavating plant **(3 marks)**

(b) Explain the precautions taken when operating earth moving plant **(7 marks)**

(c) With the aid of a sketch, describe high- level discharge dumper **(6 marks)**

(d) Explain the following terms used in earth moving plant:-

i) Plant matching

ii) Plant balancing **(4 marks)**

Question Three

- a) State FOUR factor considered when selecting rollers (**4 marks**)
- b) Explain THREE factors affecting comp active effort of rollers (**6 marks**)
- c) List SIX uses of pumps in construction (**3 marks**)
- d) With the aid of a sketch, briefly describe semi rotary hand pump for transporting water (**7 marks**)

Question Four

- a) State SIX FACTORS considered when selecting pile driving plant and equipment (**6 marks**)
- b) State FOUR factors affecting the productivity of mixers (**4 marks**)
- c) With the aid of a sketch, describe the operation of tilting drum mixers (10 marks)

Question Five

- a) Briefly explain the operation of self-propelled pressure sprayer (**5 marks**)
- b) A contractor purchased a plant at a cost of Ksh. 500,000. It's estimated economic life is 10 years .The plant is expected to work for 2000 hours per year. The average rate of depreciation per year is 25%. Assuming salvage value of Ksh. 5000 at the end of 10 years, use the straight line method to calculate depreciation per hour (**10 marks**)
- c) State FIVE precautions taken while blasting (**5 marks**)