



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**((A Constituent College of JKUAT)**

(A Centre of Excellence)

**Faculty of Engineering &  
Technology in Conjunction with  
Kenya Institute of Highways and  
Building & Technology (KIHBT)**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**HIGHER DIPLOMA IN BUILDING & CIVIL ENGINEERING  
(BUILDING SERVICES OPTION)**

EBE 3206: MECHANICAL PLANT & EQUIPMENT

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2012**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Scientific 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) State **SIX** factors considered when selecting pile driving plant and equipment. **(12 marks)**

b) Using a sketch, describe tripod piling frame. **(8 marks)**

**Question Two (20 marks)**

a) Briefly explain the operation of:

(i) Drop hammer

(ii) Single acting diesel hammer **(14 marks)**

b) State **THREE**:

(i) Advantages and;

(ii) Disadvantages of single acting steam hammer. **(6 marks)**

**Question Three (20 marks)**

a) State the **FOUR** factors considered when selecting rollers. **(4 marks)**

b) Explain **THREE** factors affecting compactive effort of rollers. **(6 marks)**

c) Briefly describe the following types of compacting plant:

(i) Tamping roller

(ii) Rammers **(10 marks)**

**Question Four (20 marks)**

a) Using sketches, describe:

(i) Pneumatic tyred roller **(7 marks)**

(ii) Beam vibrator **(7 marks)**

(iii) Self propelled pressure sprayer. **(6 marks)**

**Question Five (20 marks)**

a) List **SIX** uses of pumps in construction. **(6 marks)**

b) With the aid of sketch, briefly describe the use of the following:-

(i) Compressor

(ii) Semi rotary hand pump for transporting water. **(14 marks)**