THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

DIPLOMA IN ENGINEERING
DIPLOMA IN ARCHITECTURE
CERTIFICATE IN ARCHITECTURE

EB 2205 : CIVIL ENGINERING MATERIAL II

SEMESTER II EXAMINATIONS

APRIL/MAY 2010 SERIES

TIME: 2 HOURS

Instructions to Candidates

Answer Question **ONE** and any other **TWO** Questions

Question ONE (30 Marks)

(a). Explain the following properties of aggregate.

(i). Durability
(ii). Cleanliness **(4 Marks)**

(b). Explain the effect of fineness of cement on its properties. **(4Marks)**

(c). List **SIX** methods of transporting concrete. **(3 Marks)**

(d). Explain the role of the following materials in concrete:

(i). Course aggregate
(ii). Fine aggregates
(iii). Cement
(iv). Water **(8 Marks)**

(e). With aid of sketch, describe expansion joints. **(3 Marks)**

(f). Define the term workability of concrete. **(2 Marks)**

(g). List **SIX** processes involved in concreting. **(3 Marks)**

(h). Explain soundness of cement and state the test used. **(3 Marks)**

Question TWO

(a). Describe **FOUR** types of Portland cements and state their uses. **(10 Marks)**

(b). State the differences between fine and coarse aggregates. **(2 Marks)**

(c). Outline the following types of aggregates.

(i). Light weight aggregates
(ii). Normal weight aggregates **(8 Marks)**

Question THREE (20 Marks)

(a). Outline the procedure of carrying out slump test on concrete. **(9 Marks)**

(b). Using suitable sketches, explain the **THREE** types of slump obtainable in a Slump test. **(9 Marks)**

(c). Explain the following properties of concrete and state the factors that influence them:

(i). Bleeding
(ii). Durability **(5 Marks)**

Question FOUR (20 Marks)

(a). With aid of sketches briefly describe how the following mixes operate:

(i). Tilting drum mixer
(ii). Non-tiling drum mixer **(14 Marks)**

(b). Briefly describe concreting in cold weather. **(6 Marks)**

Question FIVE (20 Marks)

(a). With the aid of sketches, describe how the following experiments are carried out.

(i). Compacting factor test
(ii). V-B consistency test **(14 Marks)**

(b). Discuss the following properties of hardened concrete:

(i). Strength
(ii). Permeability and shrinkage **(6 Marks)**