MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2014/2015

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING

2707/204: BUILDING CONSTRUCTION II, CIVIL ENGINEERING CONSTRUCTION AND TRANSPORT ENGINEERING 1

DATE: 19/3/2015 **TIME: 8:30 – 10:30 AM**

Instructions

This paper consists of EIGHT questions in two sections A & B. Answer FIVE questions from each section

SECTION A: BUILDING AND CONSTRUCTION

1. (a) Outline Five functional requirements of a roof. (10 marks)

   (b) Briefly state and explain five functions of a roof. (10 marks)

2. Sketch the following types of roofs giving the maximum spans

   (i) Lean-to roof

   (ii) Couple roof

   (iii) Closed couple roof

   (iv) Collar roof

   (v) Queen Post truss (20 marks)

3. (a) With aid of a suitable sketch differentiate between clear and effective spans.

(4 marks)

(b) Make neat sketches of the following types of eaves

(i) Flush
(ii) Open
(iii) Sprocketted
(iv) Closed (12 marks)

(c) Differentiate between a single and a double roof (4 marks)

4. Briefly explain the following terms as related to roofs:

(a) Eaves
(b) Fall
(c) fascia board
(d) Hip
(e) Rafter
(f) Pitch
(g) Purlin
(h) Ridge board
(i) Soffit
(j) Wall plate (20 marks)

SECTOPM B: CIVIL ENGINEERING CONSTRUCTION

ANSER ATLEAST ONE QUESTION FROM THIS SECTION

5. (a) Name and explain three types of Basements (6 marks)

(b) Using suitable sketches share the three main types of traditional breakwaters (6 marks)

(c) State three requirements for an ideal steeper. (3 marks)

(d) State five functions of Ballast in railways. (5 marks)

6. (a) Using suitable sketches show the four main classes of different in a fueling. (12 marks)

(b) Sketch a fish plate. (5 marks)

(c) State three favourable requirements of foundation. (3 marks)

SECTION C: TRANSPORT ENGINEERING 1

ATTEMPT ATLEAST ONE QUESTION FROM THIS SECTION

7. (a) Briefly outline the history of railway transport. (5 marks)

(b) Thomas Telford was one of the greatest highway engineers of the ancient times. Briefly describe the roads he designed during his age. (5 marks)

(c) By use of a sketch, describe the meaning of the following terms

(i) Right of way (road reserve)
(ii) Formation width
(iii) Carriage way
(iv) Crown
(v) Shoulder
(vi) Camber (10 marks)

8. (a) Briefly describe the following terms in reference to road cross-section

(i) Sub-base
(ii) Sub-grade
(iii) Wearing course
(iv) Cambre
(v) Crow (10 marks)

(b) Define the term "Gradient" in relation to highway design. (2 marks)

(c) Explain the meaning of the following types of gradient

(i) Minimum gradient
(ii) Maximum gradient
(iii) Average gradient
(iv) Ruling gradient (8 marks)