Machakos University College

(A Constituent College of Kenyatta University)
University Examinations 2013/2014

SCHOOL OF ENGINEERING

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

Diploma in Civil Engineering

G.B.C.1 Technical Drawing/Construction Plant

Date: 25/03/2014 Time: 2:00– 5:00 pm

Instructions

1. This paper consists of Eight Questions in three sections A and B and C
2. Answer Five questions taking at least two questions from section A, One Question from succeeding sections B and C and any other question from either sections A, B & C

SECTION A: GENERAL BUILDING CONSTRUCTION II

Answer at least two Questions from this section

1. (a) State four forms of wall construction. (8 marks)

   (b) With the aid of the sketched describe the following methods of dewatering a site .

   (i) Electro-osmosis
   (ii) Freezing 12 marks)

2. (a) State four types of wall ties (8 marks)

   (b) Outline two methods of preventing moisture penetration into buildings (6 marks)

   (c) Briefly explain the term “Cavity Wall” (3 marks)

   (d) Outline six materials recommended for D.P.C. (3 marks)

3. (a) Briefly Outline Five functional requirements of Damp Proof Courses. (10 marks)

(b) State Four materials suitable for Damp Proof Membranes. (8 marks)

(c) Briefly explain the term stretcher bond. (2 marks)

4. (a) State four functional requirements of door frames (4 marks)

(b) Illustrate two methods of fixing a window frame to a Masonry wall as work progresses. 8 marks)

(c) Illustrate the setting out of a building using the builder's square method. (8 marks)

SECTION B: TECHNICAL DRAWING

ANSWER AT LEAST ONE QUESTION FROM THIS SECTION

5. (a) A wheel is restrained such that without slipping it rolls along a straight path AB. A point Z is at a position along the circumference of the circle. If the wheel makes one complete revolution about the vertical axis along plane AB, trace the locus of point Z and identify the locus so formed given wheel diameter = 80mm. (9 marks)

(b) Figure 1. Shows a shaped block drawn in 1st angle orthographic projections. Given (i) and (ii) as the front elevation and the plan respectively:

(i) Draw the given views half size and complete the missing views (End elevation)
(ii) Draw to half size the isometric view of the block making point X the lowest point. (11 marks)

6. (a) The figure 3 below shows a sketch of the moving parts BC and DE of a mopped engine connected to rod CD with an attachment of a piston at point O as shown. Given;- CO = 110MM, DO = 55mm, CP = ½CO and DQ = ½DO.

Plot to full size, the locus of points P and Q as the crank BC makes one complete in the direction shown. (12 marks)

(b) Figure 2 shows the plan and front elevation of a shaped block drawn in 3rd angle orthographic projection.

(i) Draw the given views and complete the missing end elevation.

(ii) Draw the block in oblique projection making face A be parallel to the plane of projection. (8 marks)

SECTION C: CONSTRUCTION PLANT

Answer At least one question from this section

7. (a) State and explain uses of a bulldozer. (10 marks)

(b) Make a neat sketch of a grader (10 marks)

8. (a) Explain 5 factors affecting selection of excavator. (5 marks)

(b) Make a neat sketch of a Backactor (10 marks)

(c) State five uses of transporting plant. (5 marks)