



# Machakos University College

(A Constituent College of Kenyatta University)

University Examinations 2013/2014

SCHOOL OF ENGINEERING

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

## Certificate in Masonry Year 2

Masonry Theory

Date: 25/3/2014

Time: 8:30 – 11:30 am

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### ***INSTRUCTIONS TO CANDIDATES***

- (i) Answer any five out of the given EIGHT
  - (ii) Maximum marks for each part of a question are as shown.
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- 1. (a) Outline THREE problems of water in the sub-soil (6 marks)
  - (b) State THREE objectives of temporary exclusion of water (6 marks)
  - (c) With the aid of a sketch briefly explain the sump hole method of temporary exclusion of ground water (8 marks)
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- 2. (a) Outline FIVE situations where shoring may be required. (10 marks)
  - (b) Make neat sketches of the following types of shores.
    - (i) Dead Shore
    - (ii) Flying shore (10 marks)
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- 3. (a) Briefly explain THREE main reasons which render underpinning necessary. (9 marks)
  - (b) With the aid of a sketch briefly explain the procedure of wall under pinning. (11 marks)
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- 4. (a) Briefly explain the following terms as related to roofs.
    - (i) Eaves
    - (ii) Fascia board
    - (iii) Hip rafter
    - (iv) Jack rafter
    - (v) Span (10 marks)
  - (b) Outline FIVE functions of a roof. (10 marks)

5. (a) With the aid of a neat sketch briefly explain the perimeter trench method of draining water in water logged sites. (10 marks)
- (b) Make a neat sketch of a single flying shore and label all the parts. (10 marks)
6. (a) State TWO ways of expressing the pitch of a roof. (4 marks)
- (b) Make neat sketched of the following types of roofs:-
- (i) Couple roof
  - (ii) Closed couple roof
  - (iii) Collar roof
  - (iv) King Post Truss (16 marks)
7. (a) The figure below shows a chimney stack projecting through the slope of a roof covered with plain clay tiles:-
- (i) Sketch a labeled section to show the construction details between the chimney stack and the roof.
  - (ii) Sketch a labeled section through a valley of a pitched roof covered with plain clay tiles. (14 marks)
- (b) Outline THREE preliminary activities to be carried out before demolition work on an isolated building commences. (6 marks)
8. (a) Sketch and label a vertical section to show water-proofing details in a brick chimney stack where it intersects with a pitched roof. (10 marks)
- (b) List down TWO causes of smoky chimneys (4 marks)
- (c) Sketch and label a vertical section through a parapet wall. (6 marks)