



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL
ENGINEERING

BCE CD 118: BUILDING TECHNOLOGY I

DATE: 6/6/2017

TIME: 8.30-10.30 AM

INSTRUCTIONS

- This paper comprises of **five** questions
- Question **one** is **compulsory** and carry 30 marks)
- Answer any **other two** questions

- 1
- Briefly explain 4 factors considered during site investigation. (4 marks)
 - Define the term timbering (2 marks)
 - Describe the work involved in site clearance. (4 marks)
 - Sketch 3 methods used in site leveling. (3 marks)
 - Sketch and label the following types of foundations (X= SECTION)
 - Simple strip foundation
 - Simple raft foundation (6 marks)
 - With aid of a sketch explain the use of (3. 4. 5) in setting out (4 marks)
 - List 5 functional requirements of a load bearing wall. (2 marks)
 - With aid of a sketch show the following parts of a pitched roof
 - Pitch
 - Rafter
 - Tie
 - Wall plate

- v. Ridge cap (5 marks)
2. a) i) With aid of a sketch explain 3 entry routes for moisture in a building (9 marks)
- ii) List 3 types of openings in walls stating their uses. (3 marks)
- b) i) Explain 3 factors considered in selecting a wall finish. (6 marks)
- ii) List 4 types of wall finishes. (2 marks)
- 3 a) A column is to be built off a square concrete base. If the column load is 450 KN and the bearing capacity of the subsoil is 150 KN/M². Calculate the minimum area of base which could be used. (10 marks)
- b) To a suitable scale draw a section through a typical R. C foundation suitable for 3 (a) above. (10 marks)
4. a) i) With aid of a sketch explain the components of substructures up to dpc. (6 marks)
- ii) List 5 types of floor finishes stating where each is suitably used. (5 marks)
- b) i) Outline 5 factors considered when choosing the type of timbering to trenches. (5 marks)
- ii) Sketch suitable timbering in loose soils at any depth. (4 marks)
5. a) i) Explain 5 principles in the erection of scaffoldings. (5 marks)
- ii) Sketch a putlog scaffold stating where it is suitably used. (5 marks)
- b) Using a line diagram illustrate indirect system of cold water installation. (6 marks)
- c) Using an annotated sketch show the minimum dimensions for private stairs as required by the Kenya Building Code for the following.
- i. Landing
- ii. Headroom
- iii. Rise
- iv. Going (4 marks)