



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES
DEPARTMENT OF HEALTH SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE IN PUBLIC HEALTH

HPH208: BUILDING MATERIAL

DATE: 21ST JANUARY, 2025

TIME: 2.00 PM – 4.00 PM

INSTRUCTIONS:

Answer question ONE (Compulsory) and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) State and explain FIVE physical considerations on selection of a building site. (5 marks)
- b) A contract is a legal framework for the agreement between the parties, which is both certain and enforceable. Briefly state and explain FIVE key elements in an enforceful contract. (5 marks)
- c) Describe physical properties and quality tests of the following building materials:
 - i. Bricks
 - ii. Cement
 - iii. Concrete (10 marks)
- d) With an aid of a diagram, describe manufacture of Cement by dry process. (10 marks)

QUESTION TWO (20 MARKS)

- a)
 - i. Define Workability in concrete.
 - ii. State and explain factors affecting workability
 - iii. How to improve the workability of concrete. (10 marks)

- b) A foundation is the element of a structure which connects the structure to the ground, and transfers loads from the structure to the ground. Foundations are generally considered either shallow or deep. By aid of labeled sketches, describe ONE shallow and ONE deep type of foundation used in construction. (10marks)

QUESTION THREE (20 MARKS)

- a) Define the following terms as used in building construction:
- Building contract specification
 - Structural defect
 - Provisional sum
 - Fluctuation sum
 - Corrective Maintenance (10 marks)
- b) You have been engaged as a Public Health Officer to initiate a new Government project by a Public Institution. State and explain FIVE mandatory government bodies that will be involved to issue permits to the new project. (10 marks)

QUESTION FOUR (20 MARKS)

- a) i. State TWO causes of dampness in a building.
- ii. Explain FOUR characteristics of a good plaster works.
- iii. Describe FOUR defects that may arise in a plaster works (10 marks)
- b) A stair is a series of steps arranged in a manner as to connect different floors of a building. Briefly explain FIVE major requirements of a good Staircase in a building. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Differentiate between prime cost sum and Provisional sum (4 marks)
- b) Briefly describe the process of procurement of a large Civil Engineering contract starting from tender advertisement to site possession (6 marks)
- c) A procuring entity may use direct procurement as allowed under sub-section (2) of The Public Procurement and Asset Disposal Act, 2015 as long as the purpose is not to avoid competition. With aid of examples, briefly describe FIVE conditions in which one is authorize to use direct procurement method. (10 marks)