



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

INTRODUCTION TO MATERIALS AND CONSTRUCTION I

AAR 1104

Examination Paper

December 2015

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: NONE

Examiner's Name: Miss H Sakupwanya

INSTRUCTIONS

1. Answer any four (4) questions
2. Each question carries 25 marks
3. Illustrate your answers with sketches where appropriate

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

QUESTION 1

- a) Name and describe 2 building techniques that use unbaked earth. (5)
- b) What characteristics make timber a good building material? (5)
- c) What are the purposes of seasoning timber? (5)
- d) With the aid of diagrams, describe kiln seasoning of timber. (10)

QUESTION 2

- a) What are the properties of good clay bricks? (5)
- b) With the aid of illustrations, explain clay the brick making process. (20)

QUESTION 3

- a) Write notes on the cement manufacturing process. Use illustrations where applicable. (20)
- b) Discuss the uses and applications of ordinary Portland cement. (5)

QUESTION 4

- a) Bamboo is a type of grass that is seeing an increased use as a 'green' building material. Explain its application as a construction material, noting its advantages and disadvantages. (15)
- b) What are the uses of timber in construction? (5)
- c) Explain briefly how grass can be used in construction. (5)

QUESTION 5

- a) Name 5 applications of stone in construction. (5)
- b) Draw 5 different timber trusses that are used in construction and describe each one. (10)
- c) What are the applications of mortar in construction? (5)
- d) How should cement be stored and handled? (5)

QUESTION 6

- a) Name 5 characteristics of aggregates as they are used in construction. (5)
- b) List the properties of good concrete. (5)

- c) Name and describe 2 methods that are used to test concrete. (10)
- d) Preservation increases the durability of timber. Name 5 methods of preserving timber. (5)