NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT
2012-2013 ACADEMIC YEAR
DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE
BACHELOR OF QUANTITY SURVEYING (HONOURS) DEGREE
PART I – FIRST SEMESTER EXAMINATIONS – DECEMBER 2013
AAR 1104 INTRODUCTION TO MATERIALS AND CONSTRUCTION I
AAR 1108 INTRODUCTION TO CONSTRUCTION MATERIALS I

Instructions **Duration: 2 Hours**
Answer all questions. *Total Marks: 100*
Illustrate your answers with sketches where appropriate

QUESTION 1

a. Describe any five methods of applying preservatives on timber.
(5)

b. With the aid of sketches illustrate the different types of timber defects and their impact on construction.
(10)

c. Discuss the use of these techniques in construction:

i. Wattle and daub construction (5)
ii. Thatching
(5)

[25]

QUESTION 2

a. Using diagrams, compare the two methods of cement manufacturing (10)
b. Describe the following types of cement and how they are used in construction:
i. Low-heat cement (2)
ii. White cement (2)
iii. Masonry cement (2)
iv. Rapid hardening cement (2)
v. Coloured cement (2)
c. State one role of each of the components that are formed during cement hydration.
(5)

[25]

QUESTION 3

a. In the preparation process of concrete describe these terms and explain how they affect the strength of concrete:
    i. Workability
    ii. Water cement ratio
    iii. Concrete curing
    iv. Voids method
    v. Fineness modulus method (20)

b. In concrete block work, list any 5 required properties of mortar. (5)

[25]

QUESTION 4

a. Describe the five different types of brick bonding used in construction with the aid of sketches. (10)

b. Advise a client who is debating the use of brickwork or block work for the construction of the walls of a 5 storey building justifying your standpoint. (10)

c. Discuss 5 ways in which clay bricks deteriorate in construction. (5)

[25]