



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE**

**INTRODUCTION TO MATERIALS AND CONSTRUCTION II**

**AAR 1204**

**Examination Paper**

**May 2016**

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 4 questions
2. Each question carries 25 marks
3. Illustrate your answers with sketches where appropriate
4. Write clearly and legibly

**MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
<b>TOTAL</b>	<b>100</b>

### QUESTION 1

- a) Draw and annotate the following foundations types and the conditions in which they can be applied:
- i. Strip foundation (5)
  - ii. Pad foundation (5)
  - iii. Raft foundation (5)
  - iv. Pile foundation (5)
- b) Name the properties of plastic that make it ideal for use in construction (5)

### QUESTION 2

- a) State and explain the components that constitute paint. (10)
- b) State and compare the performance of materials that can be used to make pipes for building construction. (15)

### QUESTION 3

- a) What are the functions of a roof? (5)
- b) Draw a timber roof system laid with clay tiles, identifying the elements that make up the roof. (20)

### QUESTION 4

- a) A wall provides a barrier between the exterior and interior climates of a building.
- i. Explain the performance requirements of exterior walls (6)
  - ii. What are the specific functions that a wall finish has to fulfil? (4)
- b) What properties make asphalt a good building material? (5)
- c) Write brief notes making a comparison between natural vulcanised rubber and synthetic rubber. (10)

### QUESTION 5

a) What are the advantages and disadvantages of using metals in construction? (10)

b) A developer wants to prepare a wall and floor finishes schedule for an office building.

Advise them on the materials they could use in the following spaces, giving reasons for your choice:

i. Offices and boardrooms (5)

ii. Ablutions (5)

iii. Reception (5)

### QUESTION 6

Identify any 5 types of glass and briefly describe how they are produced and their uses (25)