

**FEDERAL UNIVERSITY OF TECHNOLOGY**  
**SCHOOL OF ENVIRONMENTAL TECHNOLOGY**  
**ARCHITECTURE DEPARTMENT**  
**2013/2014 RAIN SEMESTER EXAMINATIONS.**

**Course title: - BUILDING COMPONENTS AND METHODS IV**

**Course code: - ARC 304**

**Time Allowed: - 2 HOURS**

**Date: - 8<sup>th</sup> October, 2014**

**Mark: - 70%**

**Instruction: Attempt question 1 and any other 3 questions**

1. As part of a building team in a building project, the structural engineer issued a site instruction to place oversite concrete.
  - a. Explain in details, the steps/ measures you will take to ensure that the concrete achieves strong bond assuming you are the contractor's site engineer.
  - b. What is GREEN concrete.
  - c. Your client decided to build a prototype in the northern part of the country and instructed that the pitch roof of the building be changed to a flat roof. Describe how the new roof will be achieved and made water tight and also how storm water will run off. Show sketches. (25marks)
  
2. With sketches, explain the construction of a hollow beam floor unit.
  - b. What are the functional requirements of stairs?
  - c. Stairs come in different types, list and sketch these types. (15 marks)
  
3. With the aid of a sketch, show proper details of a reinforced concrete stair and label ten (10) essential parts.
  - b. How can the tensile strength in concrete be improved? Show sketches.
  - c. Explain how parapet walls are protected from weather conditions. Show sketches. (15 marks)
  
4. Draw the section of a pitched roof and label the essential parts.
  - b. What is composite wood? Give examples of areas where this type of wood has been used in buildings.
  - c. What is seasoning in wood?(15 marks)
  
5. With short notes and describe the three (3) types of timber doors. Sketch and label them.
  - b. Define joint in concrete and write short notes on the types.
  - c. State the factors you will consider in designing windows for an Artist studio. (15 marks)

**GOODLUCK!!**