

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE**  
**BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE**  
**2012-2013 ACADEMIC YEAR**  
**PART II SECOND SEMESTER EXAMINATIONS – MAY 2013**  
**AAR 2202 BUILDING CONSTRUCTION II**

**Instructions**

**Time : 4 Hours**

***Answer All Questions***

***Question 1 is to be answered on A1 sheet/s of paper.***

***You can draw either in pencil or technical pen only.***

***Number all your sheets.***

***Do not write your name on any sheet.***

**QUESTION 1**

The inside dimensions of a staircase in a residential building with three floors is 2 500mm x 6 000mm. The floor to ceiling height is 3 280mm and the RCC slab is 120mm thick. Design the proper layout of the RCC stair for this building showing

- (a) Floor plans of the stair at the Ground and Second Floor Levels using scale 1:50 (9)
- (b) The Section through the stair at 1:50 (10)
- (c) Provide details at a scale of 1:5 indicating various names of components of the stair. (16)
- (d) Explain the functions of the components of the stair. (5)

**[40]**

**QUESTION 2**

- (a) (i) Explain the term '*anti-capillary groove*' (2)
- (ii) What is its purpose? (3)
- (iii) Identify any two places where anti-capillary grooves can be found. (2)
- (b) Draw vertical sections of the following
  - (i) a four paneled timber frame and door (8)
  - (ii) concrete sill and lintel (5)
  - (iii) Identify any two places where anti-capillary grooves can be found. (2)

**[20]**

### **QUESTION 3**

- (a) Draw neat and clear single line diagrams to illustrate Lean-to roof, Gable roof, Close couple roof, Hip roof and Hip and valley roof and identify them by inserting the correct names next to each sketch. (5)
- (b) State five advantages of trussed roof construction over other types of roof construction systems. (5)
- (c) Using sketches identify five members of a Close couple roof. (5)
- (d) With the aid of sketches show the difference between a *Stilted* arch and a *Splayed* arch (5)

**[20]**

### **QUESTION 4**

- (a) What are the functional requirements of a wall? (5)
- (b) How are walls classified? (3)
- (c) What are the four advantages of cladding (4)
- (d) Using sketches explain the difference between *Claddings fixed to a structural backing* and *Claddings to framed structures*. (8)

**[20]**