

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURE (HONOURS) DEGREE
2012-2013 ACADEMIC YEAR

PART II – FIRST SEMESTER EXAMINATIONS – JANUARY 2013

AAR 2104 – ENVIRONMENTAL DESIGN I

Instructions

Answer all questions

Time: 3 hours

QUESTION 1

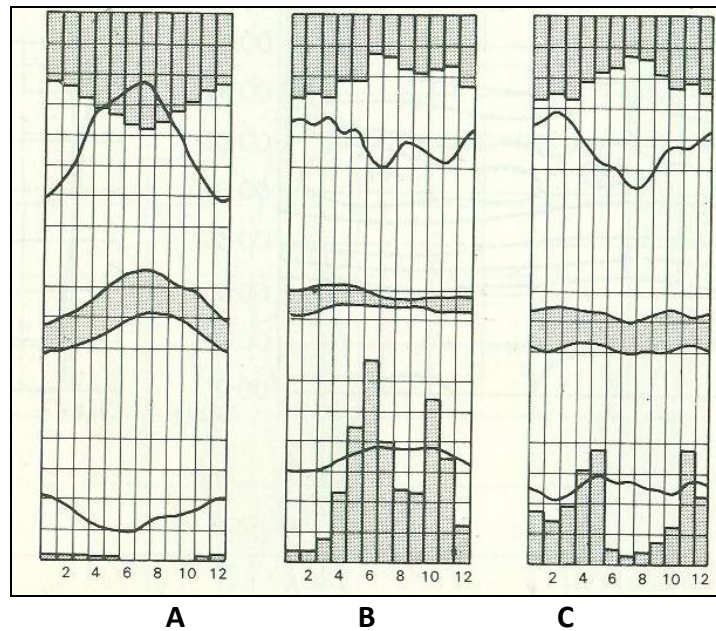


Fig 1 Climate Graphs

- Identify from the data above (Fig 1) the climatic zones and describe the characteristics of the climatic zones. [30]
- How would the architecture of such places identified in (a) be influenced by the climates.[10]

[40]

QUESTION 2

- a. State the objectives of thermal control. (5)

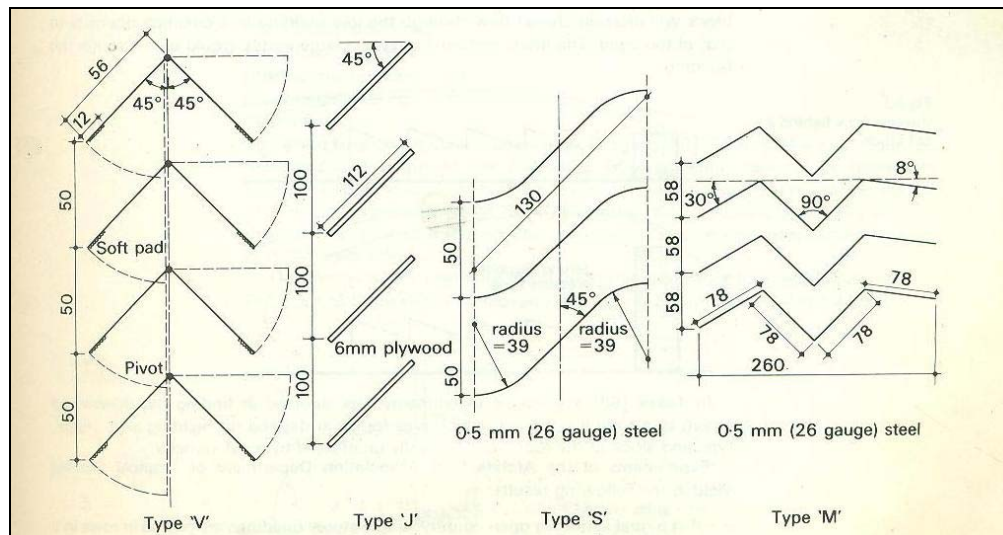


Fig 2: Louvre types

- b. Compare and contrast the following Louvre types (Fig 2) as ways an architect ensures sufficient ventilation to all parts of a building and at the same time keep out rain, dust and excessive solar radiation. (10) **[15]**

QUESTION 3

- c. Discuss the structural controls that are employed as a passive means of thermal control (15)
- d. Using a bio-climatic chart state and explain, the climatic elements that determine the comfort of occupants in a building? (10) **[25]**

QUESTION 4

- a. In building design one has to consider wanted and unwanted sound. Assess the means of control of internal and external noise.(10)
- b. Apart from quantity of lighting, the quality of light in a building is also important. Discuss the requirements of good lighting in buildings, particularly in buildings in tropical conditions.(10) **[20]**