

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF ARCHITECTURE AND QUANTITY SURVEYING

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURE (HONOURS) DEGREE

PART II – SUPPLEMENTARY EXAMINATIONS – DECEMBER 2005
AAR2104 – ENVIRONMENTAL DESIGN I

Instructions

Time: 3 hours

Answer question I and any other three

- Q1 Describe five methods that were used in search of the comfort scales that you have learnt. Also indicate limitations of the scales and the equipment and the most reliable scale materials that were used. (25)
- Q2
- a) Explain the following terms used in sound insulation and acoustics
- i) decibel scale
 - ii) reverberation time
 - iii) Sound absorption coefficient
 - iv) Helmholtz absorber (10)
- b) Compare and contrast airborne and structure borne in buildings, giving the main factors that influence the effectiveness of a building component against them. (15)
- Q3 Explain the following terms used in lighting studies
- a)
- i) Daylight factor
 - ii) luminous intensity
 - iii) color temperature
 - iv) gaseous discharge lamp
 - v) CIE sky
- b) sketch, and comment on the use of different types of light fittings (luminaries) in architecture with the following utilization factors.
- i) High utilization factor (90 – 100%)
 - ii) Medium utilization factor (35 – 65%)
 - iii) Low utilization factor (less than 15%) (15)

Q4 Describe the various local factors that influence

- a) Site climate. (15)
- b) Urban climate (10)

Q5 Among the environmental design strategies used for thermal control in building, Siting, Building orientation, and Building could significantly reduce the impact of solar heating on buildings. Discuss the applicator of these strategies in environmental design. (25)