NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
JULY SUPPLEMENTARY EXAMINATIONS 2005

SUBJECT: COMPUTER GRAPHICS
CODE: SCS4203

INSTRUCTION TO CANDIDATES

Answer any four questions.

Time: 3 hours

QUESTION ONE

a)   Compare and contrast ray tracing and radiosity.   [15]
b)   Explain why plotting dashes with a fixed number of pixels can result in
     unequal- length dashes for the different line orientation   [5]
c)   Explain in detail how a line is generated using the Brasenham's line
     generating algorithm   [5]

QUESTION TWO

Modify the Cohen-Sutherland line-clipping algorithm to clip lines against a
circular window.   [25]

QUESTION THREE

Write a program in C++ to convert coordinates of the system with the origin at
the lower left of the display to coordinates of the system with the origin at the
upper left of the display   [25]

QUESTION FOUR

a)   Outline the operating characteristics of the following graphics display
     systems:
 i)   Plasma display   [8]
 ii)   Liquid Crystal display   [8]

b)   Describe the transition states of the Cartesian reference frames in a
     graphics display process   [9]

QUESTION FIVE

a. State with reasons the appropriateness of ambient lighting, diffuse
    lighting, or specular lighting in the following shading techniques:
    i.   Phong shading   [13]
    ii. Gouraud shading   [12]

END OF QUESTION PAPER