

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF APPLIED SCIENCE**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**AUGUST SUPPLEMENTARY EXAMINATIONS 2004**

**COURSE:       COMPUTER GRAPHICS**  
**CODE:         SCS 4203**

**INSTRUCTIONS TO CANDIDATES**

This question paper consists of Five questions.  
Answer any four (4) questions

**QUESTION ONE**

- a) A proposed graphics system uses 225-line non-interlaced scan with 30 frames per second.
- i) Calculate the total refresh time for the system [5]
- b) Outline the importance of Computer Graphics in computing [5]
- c) Name and write a detailed description of 10 areas where Computer Graphics can be applied. [15]

**QUESTION TWO**

- a) Summarise the steps in the Midpoint Circle Generating Algorithm [12]
- b) Generate coordinates of the first 8 points along a circular path of the circle with centre at (3;2) and with a radius of 10 units using the midpoint circle generating algorithm [13]

**QUESTION THREE**

- a) Write a C++ program to display a yellow blinking cursor on a red background colour [20]
- b) Rotate an object about an axis that is parallel to x-axis [5]

**QUESTION FOUR**

- a) Explain in detail how a Direct View Storage Tube (DVST) display works [10]
- b) Compare and contrast pixel-phasing technique and area sampling technique. [10]
- c) Consider an RGB raster system that has 640 by 480 frame buffer. If this system stores 24 bits per pixel.
  - i) What size frame buffer is required for the system? [3]
  - ii) How many different colours can be displayed by the system? [2]

**QUESTION FIVE**

Write a C++ program to display the following text centred in a rectangular window as show bellow and in Gothic font. [25]

Computer Science  
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**END OF QUESTION PAPER**