UNIVERSITY OF SWAZILAND

FACULTY OF SCIENCE & ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE

MAIN EXAMINATION, DECEMBER 2017

Title of Paper : Computer Graphics

Course Code : CSC 352

Time Allowed : Three (3) Hours

Instructions : Answer **ALL** questions in Section A
Answer **only THREE** questions from Section B
All questions are worth **20 marks**

This paper should not be opened until permission has been granted by the invigilator.
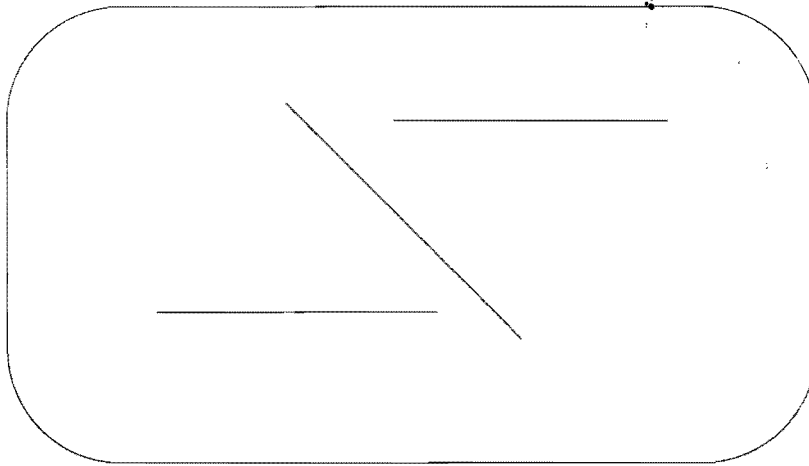
SECTION A

*Answer **all** questions from this section.*

Question 1.
 (a) Define a UI.   **[4]**
 (b) Discuss three application areas for computer graphics & two application areas for image processing.   **[10]**
 (c) Why is it difficult to develop a good UI?   **[6]**

Question 2
 (a) Discuss three reasons why the time is right for computer graphics. **[6]**
 (b) Discuss the criteria for judging the most important graphics primitive (line)**[6]**
 (c) Work out the CRT input signals for the following output, stating all assumptions, if any.   **[8]**

SECTION B
*Answer any **three** questions from this section.*

Question 3
 (a) Why is interactive computer graphics useful?   **[3]**
 (b) Discuss three main bottlenecks of computer graphics in the past. **[6]**
 (c) Compute the memory needed for a *640* x *480* frame-buffer with depth 3. **[5]**
 (d) Discuss the OpenGl as a standard.   **[6]**

Question 4
 (a) Why are lines so important in computer graphics? **[3]**
 (b) Describe any two requirements for good computer graphics. **[3]**
 (c) How does the vector (parametric) definition of a line work? **[4]**
 (d) Compute the equations of the line segments between the following points:
   i) (8, 8) to (11, 16)
   ii) (3, 4) to (7, 8).   **[5]**
 (e) Workout if the above line segments are parallel or not. If they are not parallel compute their point of intersection.   **[5]**

Question 5

Write a program to draw a chessboard, showing how your program develops from your pseudo-code. **[20]**

Question 6

Write a program to draw a vehicle that keeps moving from left to right and right to left until the user presses any key on the keyboard, show your design (pseudo code). **[20]**