

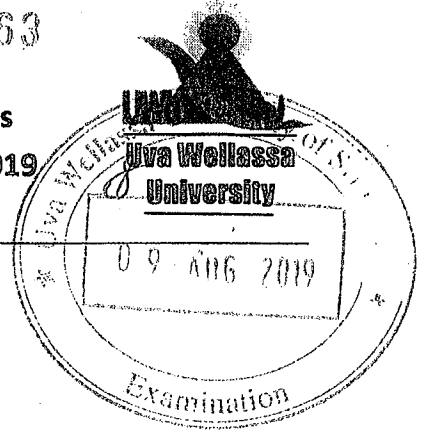
Uva Wellassa University of Sri Lanka 0063

Faculty of Applied Sciences

Department of Computer Science and Informatics

300 level 1st Semester Examination – July / Aug. 2019

CST381-2 Computer Graphics



Instructions to candidates

Duration: Two (02) hours

This paper consists of two (02) parts. Part A (Structured) and Part B (Essay).

Mark allocation: 100

Answer all questions and attach the question paper with the answer script.

Calculators are allowed.

Index No.

Part A

No. of questions: Six (06)

Mark Allocation: 15

1. Differentiate 2D graphics over 3D graphics. (3 mark)

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2. List five (05) sub-fields in Computer Graphics (CG). (2 mark)

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3. Briefly explain how CG contributes to Computer Simulation. (3 mark)

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4. i. What is a pixel? (1 mark)

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ii. Briefly explain how dot pitch affects the quality of a picture.

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5. List five (05) standards for Computer Graphics provided by VESA. (2 mark)

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6. List down four (04) features of Accelerated Graphics Port (AGP). (2 mark)

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Part B

No. of questions: Three (03)

Mark Allocation: 85

1.
 - a. Consider a line which starts from (-4, -2) and ends with (5, 4) to draw the line using Bresenham's algorithm.
 - i. Derive the formulas for initial decision parameter and continuous decision parameter in Bresenham's line drawing algorithm. (6 mark)
 - ii. Find out the intermediate coordinate points that lie between the above mentioned start and end points. (8 mark)
 - b. Consider a circle to which the center is located at the origin and $r = 6$. Find out the coordinate values for all the octants in the circle. (16 mark)

2.
 - a.
 - i. Describe the term "colour model" in your own words. (2 mark)
 - ii. Briefly explain how black colour is produced in RGB, CMY, CMYK and HSV colour models. (6 mark)
 - b. Perform scaling with ($S_x = 3, S_y = 2$) and ($S_x = 0.75, S_y = 0.75$) separately for a triangle located at (2, 2), (4, 2), (3, 5) and discuss how the properties of the objects change on various scaling condition. (8 mark)