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MAIN EXAMINATION

JANUARY – APRIL 2018 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

REGULAR PROGRAMME

CMT 404: COMPUTER GRAPHICS

Date: APRIL 2018	**Duration: 2 Hours**

INSTRUCTIONS:

1. Attempt all Questions in Section A and any other two in Section B
2. Points will be given to clear and logical answers.
3. No reading materials are allowed into the exam room.
4. Calculators may be used for this examination.

Q1. a) Computer graphics is ubiquitous. Discuss **(5 marks)**

b) Using five well illustrated examples of key mathematical concepts , explain how mathematics justifiably is the foundation of computer graphics **(10 marks)**

c) State the law of rectilinear propagation of light and explain it role in computer graphics terms. **(5 marks)**

d) Discuss giving examples the role of JavaScript and HTML 5 as development tools of graphics in web applications **(5 marks)**

e) Outline any four properties and two methods that are common to canvas line, arc, circle, quadratic curves, and bezier curves **(5 marks)**

Q2. a) Transformations is key to graphics. Discuss. **(5 marks)**

b) Discuss the role of the transform() and setTransform() methods as used in

Canvas graphics **(5 marks)**

c) Write a javascript code to illustrate how you achieve multiple transformation using the canvas state stack. **(10 marks)**

Q3. a) Explain in details what happens in the graphics pipeline geometry and rasterization stages **(9 marks)**

b) Write the javascript code that will draw an arc using your own parameters on the canvas **(6 marks)**

c) Discuss any five composition operations. **(5 marks)**

Q4. a) Discuss the abilities that gives the svg path command ability to draw a complicated shape. **(12 marks)**

b) Use SVG to generate an ellipse with a horizontal linear gradient from yellow to red: **(8marks)**

Q5. a) Explain the roles of the following svg tags and use examples to illustrate their use. **(12 marks)**

i) <animate>

ii) <animatetransform >

iii) <animateMotion>

b) The jQuery animation can be achieved by using the animate() method which has the syntax:
$(selector).animate({params},speed,callback);
Explain the components in the brackets and give an example on how to use the method. **(8 marks)**

END