CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

RESITS/SPECIAL EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN APPLIED COMPUTER SCIENCE

ACSC 478: COMPUTER ANIMATION

STREAM: **TIME: 2 HOURS**

DAY/DATE: TUESDAY 29/8/2023 **2.30P.M. – 4.30 P.M.**

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Sketch maps and diagrams may be used whenever they help to illustrate your answer
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **No** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely

SECTION A-COMPULSORY

QUESTION ONE (30 MARKS)

a) Animation and technology have always gone together", explain this statement.**[2 marks]**

b) Briefly Describe stop-motion-animation and where this type of animation is used **[4 marks]**.

c) Define or explain the following terms: **[8 marks]**

i) Morphing.

ii) Illusion of movement.

iii) Mesh.

iv) Skeleton

d) Is there any difference between computer graphics and image processing? Explain **[4 marks]**

e) Blender is one of the commonly used software in modern computer animation. What are the tools contained in the Edit Menu of the Graph Editor Menu Bar in Blender? **[4 marks]**

f) Describe the term lighting, modeling and texturing as used in animation. **[6 marks]**

g) Using the concept lighting describe RGB model. **[2 marks]**

SECTION B-ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

a) What is character animation? **[2 marks]**

b) Explain why animation fails. **[6 marks]**

c) Explain the following types of animation controls: **[6 marks]**

i) Explicitly declared control

ii) Live action / analyzing control

iii) Facial animation control

d) Describe how you would use blender (or similar animation system) to create a particle system representing blue bubbles emerging through a small hole in a wall. Mention at least 3 parameters that you would set. **[6 marks]**

QUESTION THREE (20 MARKS)

a) Differentiate between 2D animation and 3D animation. **[2 marks]**

b) Using an appropriate example, differentiate between animation and simulation. **[4 marks]**

c) Compare and contrast between character animation and effects animation **[4 marks]**

d) Using physics based models, explain forward dynamics and inverse dynamics**.**

[4 marks]

e) Discuss any area where animation is applied in business and the benefits gained by using animation in the selected area of application. **[6 marks]**

QUESTION FOUR (20 MARKS)

a) List and describe any four computer animation software available in the market today.

[2 marks]

b) Explain using illustrations and diagrams the following animation concepts:

i) Key framing. **[3 marks]**

ii) Interpolation. **[3 marks]**

iii) Kinematics (Forward and Inverse). **[3 marks]**

iv) Motion Capture. **[3 marks]**

c) Explain the six activities followed in the process of creating an animation at the pre-production Phase. **[6 marks]**

QUESTION FIVE (20 MARKS)

a) What are the major differences between computer animation and traditional animation? **[4 marks]**

b) Explain the difference between stop motion animation and cut out animation. **[4 marks]**

c) Using a suitable demonstration, explain how static photographs can be converted into moving Images and create a realistic scene in an animated movie. **[6 marks]**

d) One method of creating an animation is to write a program in a standard programming language and call graphics library functions as needed to create the animation. Describe three other methods of creating animations, giving an advantage and a disadvantage of each approach. **[6 marks]**

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