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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2023/2024**

- COURSE NAME : 3D MODELING AND ANIMATION
- COURSE CODE : DAT 21403
- PROGRAMME CODE : DAT
- EXAMINATION DATE : JANUARY / FEBRUARY 2024
- DURATION : 3 HOURS
- INSTRUCTIONS :
1. ANSWER ALL QUESTIONS
 2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA **CLOSED BOOK**

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

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- Q1 (a) Briefly explain 3D modeling. (4 marks)
- (b) Explain **FIVE (5)** of 3D modeling criteria. (10 marks)
- (c) Differentiate between Inset and Extrude in 3D Blender application software. (6 marks)
- Q2 (a) Explain the following 3D graphics principles:
- (i) 3D Space
 - (ii) Coordinates
 - (iii) Axis
- (6 marks)
- (b) In 3D space coordinate is important to determine point of edge of any polygon.
- Sketch and plot coordinate (1, 0, 2), (2, 0, 2), (2, 0, 1) and (1, 0, 1) using 3D coordinate system (4 marks)
- (c) Sketch the **top orthographic, front orthographic, back orthographic** and the **left orthographic** of the object in **Figure Q2(c)1** and **Figure Q2(c)2** (10 marks)

- Q3** (a) The process involved in 3D animation consists of preproduction, production and postproduction process.

List **FOUR (4)** activities involve in preproduction process.

(2 marks)

- (b) Describe **THREE (3)** differences between path animation and cel animation

(12 marks)

- (c) Cost is the major factor in preproduction phase in animation development.

Explain **THREE (3)** factor that affect cost in 3D animation making.

(6 marks)

- Q4** (a) Principle of animation is the most important part within 3D animation making in order to create realism.

Define briefly the main purpose of the animation principles.

(2 marks)

- (b) *Squash and stretch* animation principles are often use in the development of 3D animation.

Explain *squash and stretch* animation principles briefly.

(6 marks)

- (c) *Arcs* is one of the rules to follow in 12 principles of animation.

Explain briefly about *Arcs* animation principles.

(8 marks)

- (d) Explain **TWO (2)** major elements about secondary action animation principles.

(4 marks)

Q5 (a) Lights are objects that simulate real lights such as household or office lamps, the light instruments used in stage and film work, and the sun itself

(i) Explain briefly about point light in 3D Blender object interaction.

(4 marks)

(ii) Light intensity/energy decays based on (among other variables) distance from the point light to the object.

Explain **TWO (2)** elements that drives light intensity.

(4 marks)

(b) *Area Light* is the most common light setting in the 3D Blender application.

(i) Explain briefly about *area light*.

(4 marks)

(ii) Define the shape of the light within *area light*

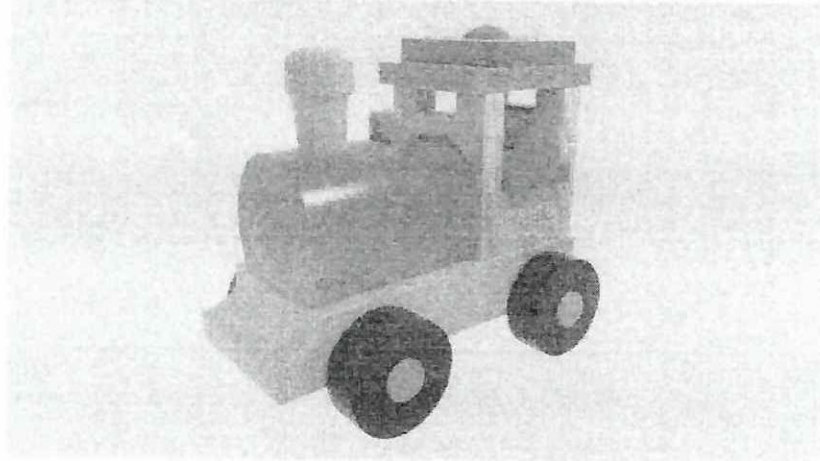
(8 marks)

-END OF QUESTIONS -

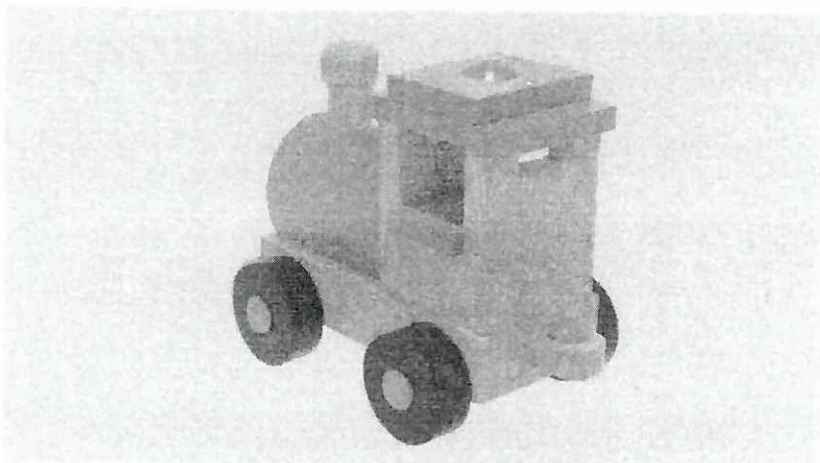
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FigureQ2(c)1



FigureQ2(c)2