



UTHM

Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019**

COURSE NAME : 3D MODELING AND ANIMATION
COURSE CODE : DAT 32203
PROGRAMME CODE : DAT
EXAMINATION DATE : JUNE / JULY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER **ALL** QUESTIONS
IN PART A AND **ONE (1)**
QUESTION IN PART B

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

PART A

- Q1** (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
- (i) Sketch and plot coordinate (2, 0, 2) using 3D coordinate system
 - (ii) Identify basic component of 3D object from (c)(i) (3 marks)
 - (iii) **Figure Q1(b)** shows the perspective view of the object.
Sketch the top view, front view and the left view of the object (9 marks)
- (c) Briefly explain the similarities between the term viewport and viewpoint (2 marks)
- Q2** (a) Briefly explain 3D modelling. (4 marks)
- (b) Explain the **THREE (3)** types of 3D modeling. (6 marks)
- (c) (i) Sketch the NURB Curve based on control vertices (CVs). (3 marks)
- (ii) Explain the NURB Curve in (c)(i). (3 marks)

- (d) Differentiate between *spline* and *lathe* in 3D Max application software.
(4 marks)

Q3 The process involved in 3D animation consists of preproduction, production and postproduction process.

- (a) List **FOUR (4)** activities involve in preproduction process.
(4 marks)
- (b) Explain **THREE (3)** activities in production process.
(6 marks)
- (c) Differentiate between inverse kinematic and motion capture.
(8 marks)
- (d) Describe the rendering activities involve in production phase.
(2 marks)

- Q4** (a) Explain **FOUR (4)** criterias of 3D model.
(8 marks)
- (b) Describe **THREE (3)** differences between path animation and cel animation.
(12 marks)

PART B

- Q5** Material often used in 3D Max to designate coating colors and textures to certain object that has been created. Mapping material to an object is the term used to describe how the textures are projected onto the geometry scale for finalizing step before rendering.
- (a) State **ONE (1)** type of material and **ONE (1)** type of shader.
(2 marks)
- (b) Describe **THREE (3)** types of material that exist in 3D modeling.
(6 marks)
- (c) Identify and explain types of material and shader should be applied in order to generate 3D model as shown in **Figure Q5(c)**. The three marble are made from glass render with two lights source pointing at the object.
(10 marks)
- (d) Tweening is a main process in any types of computer animation.
Briefly explain the tweening process particularly in keyframe animation.
(2 marks)
- Q6** In general, lighting give a huge factor on the look of final renderings. When a light is selected, several different rollouts appear that enable you to turn the lights on and off and determine how a light affects object surfaces.
- (a) Name **TWO (2)** types of lighting in 3D modeling.
(2 marks)
- (b) Explain **THREE (3)** main light sources that can be applied in 3D Max modeling.
(6 marks)
- (c) Analyse and explain light parameters that can be manipulated to produce final images for rendering purpose.
(9 marks)
- (d) Describe **THREE (3)** purpose of three-point lighting light setup.
(3 marks)

-END OF QUESTIONS-

FINAL EXAMINATION

SEMESTER / SESSION : SEM 2 / 2018/2019
COURSES : 3D MODELING AND ANIMATION

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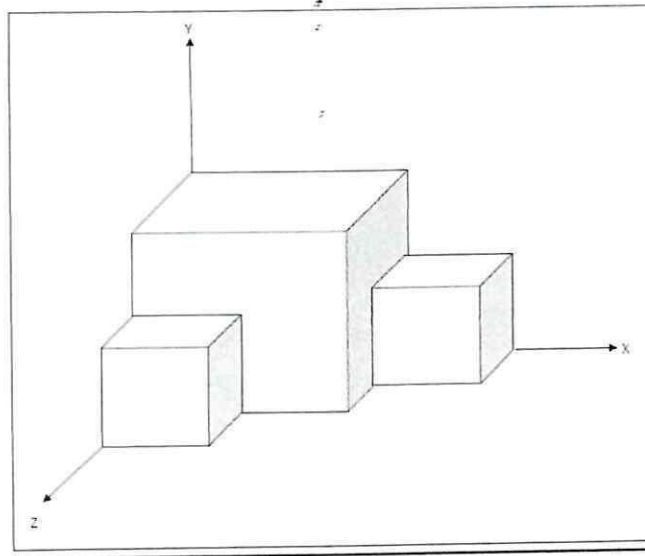


Figure Q1(b)

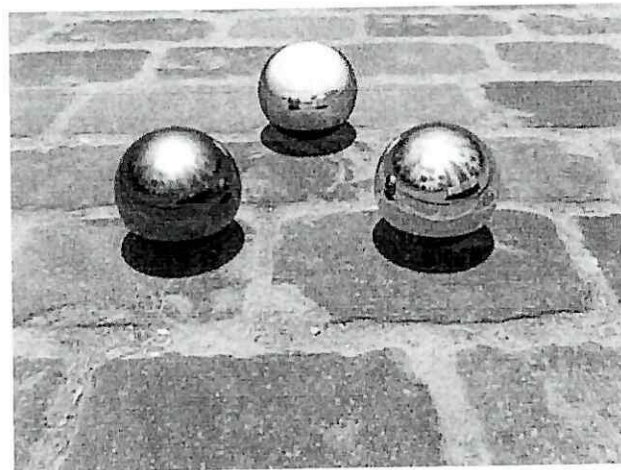


Figure Q5(c)