



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017**

COURSE NAME : 3D MODELING AND ANIMATION
COURSE CODE : DAT 32203
PROGRAMME CODE : DAT
EXAMINATION DATE : JUNE 2017
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : A) ANSWER ALL QUESTIONS
B) ANSWER ONLY ONE (1) QUESTION

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

PART A

Q1 3D Modeling is used in a wide range of fields, including engineering, entertainment design, film, visual effects, game development, and commercial advertising.

- (a) Briefly explain **FOUR (4)** criterias of 3D model. (8 marks)
- (c) Describe **THREE (3)** differences between cel animation and path animation. (12 marks)
- (d) Briefly explain tweening process in keyframe animation. (2 marks)

Q2 3D animation process consists of preproduction, production and postproduction.

- (a) List **FOUR (4)** activities 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 rendering activity involve in production phase. (2 marks)

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Q3 In 3D application, objects are made up of lines, points and no curved surfaces.

- (a) Name **THREE (3)** principles of 3D graphics. (3 marks)
- (b) Explain the principles of 3D graphics based on the answer in Q3(a). (6 marks)
- (c) Vertex is a basic building block of a 3D model.
 - (i) Sketch and plot coordinate (2, 0, 1) using 3D coordinate system.
 - (ii) Identify **ONE (1)** basic component of 3D object from (c)(i). (3 marks)

(d) **Figure Q3(d)** shows the perspective view of the object.

Sketch the top view, front view and the left view of the object.

(6 marks)

(e) Point out the similarities between the term viewport and viewpoint.

(2 marks)

Q4 In 3D animation production process, the initial phase is to plan and develop 3D modeling.

(a) Define 3D modeling.

(4 marks)

(b) Explain **THREE (3)** types of 3D modeling.

(6 marks)

(c) (i) Sketch NURB Curve based on control vertices (CVs).

(ii) Explain NURB Curve in (c)(i).

(6 marks)

(d)

Spline and Lathe are usually used to achieve the final goal of 3D models.

Differentiate between spline and lathe in 3D Max.

(4 marks)

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PART B

Q5 Material used in 3D Max definitely to designate smearing colors and textures to certain object that has been created. Mapping to an object is the term used to describe how the textures are covered or projected onto the geometry for finalizing step before rendering.

- (a) List **ONE (1)** type of material and **ONE (1)** type of shaders.
(2 marks)
- (b) Describe **THREE (3)** types of material that exist in 3D modeling.
(6 marks)
- (c) Choose types of material and shader that can 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 on.
(10 marks)
- (d) Differentiate between normal mapping and displacement mapping.
(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) Determine light parameters that can be manipulated to produce final images for rendering purpose.
(10 marks)
- (d) Describe **TWO (2)** purposes of three-point lighting light setup.
(2 marks)

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-END OF QUESTIONS-

PEPERIKSAAN AKHIR
FINAL EXAMINATION

SEMESTER / SESI : SEM II / 2016/2017
SEMESTER / SESSION

PROGRAM : DAT
PROGRAMME

KURSUS : PERMODELAN & ANIMASI 3D
COURSE

KOD KURSUS : DAT 32203
COURSE CODE

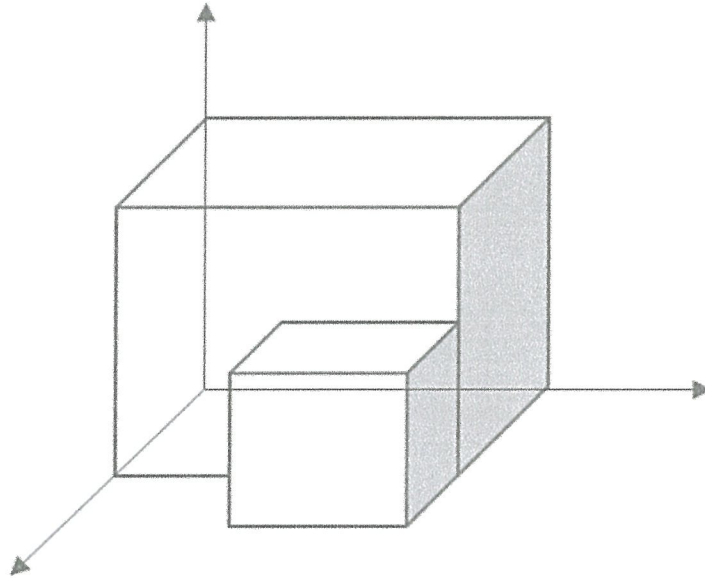


Figure Q3(d)



Figure Q5(c)

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