



The University of Fiji

School of Science and Technology
Department of Information Technology and Computer Science

ITC326

Three Dimensional Designs

Semester II, 2011

FINAL EXAMINATION PAPER

Time allowed: 3 hours [10 Minutes Extra Allowed for reading the Paper]

Weighting: 40%

Total Marks: 100

Instructions

- ✦ There are 4 main sections in this examination

Section	Marks
A (20 Multiple Choice Questions)	20
B (True/False)	15
C (Fill in the blanks)	10
D (Short/Long Answer Questions)	55

- ✦ All sections are compulsory
- ✦ Start each question on a new page
- ✦ Write your Student ID number in all the pages of your answer sheet
- ✦ Do not write with pencil or highlighted pen
- ✦ Hand in the answer Booklet to the supervisor before you leave the examination hall

Good Luck!!

1. In Maya the default frame rate is _____ frames per second, which is standard for films.

A. 30
B. 12
C. 24
D. 34
2. 3D perception is also known as _____.

A. Perspective Perception
B. Height Perception
C. Width Perception
D. Depth Perception
3. As you switch between _____ in Maya, the right-hand portion of the menus change, but the left-hand portion remains the same.

A. Menu sets
B. Scene
C. Perspective view to Hyper-graph
D. Channel box and Attributes editor
4. A _____ is a specialized piece of filmmaking and television production equipment designed to create smooth camera movements.

A. Tripod
B. Camera dolly
C. Camera tumble
D. Camera
5. When the plane objects are grouped together they create _____.

A. Plane Primitives
B. Hypergraph
C. Hierarchy
D. Grouping

6. The _____ is a window that shows how the nodes and their connections are organized in your scene.
- A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor
7. The _____ is an editor that graphically represents the various animated attributes in your scene.
- A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor
8. The primary tool for working with nonlinear animation is _____.
- A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor
9. Under Hierarchy and Combinations selection mask, which selection mode ensures that when you select items they are selected at their parent node?
- A. Select by hierarchy : leaf
 - B. Select by hierarchy
 - C. Select by hierarchy : root
 - D. Select by hierarchy : template
10. A _____ is a specific position in 3D space that is used as a reference for the transformations of objects.
- A. Origin
 - B. Controller
 - C. Tangents
 - D. Pivot point

11. The _____ allow you to playback or scroll through your animation or move to a specific point in time of your animation so you can set keyframes.
- A. Time and Range slider controls
 - B. Playback End Time control
 - C. Playback Start Time Control
 - D. None of the above
12. If you were to display the scene with Panels > Layouts > Four Panes, and you are working on the top view, which panel would show the ball moving after playing the animation?
- A. Persp
 - B. Top
 - C. Side
 - D. Front
13. Path animation is useful for animating objects such as _____.
- A. Trains
 - B. Boats
 - C. Moving Cameras
 - D. All of the above
14. _____ allows you to create and edit an animation sequence by arranging smaller animation sequences on a timeline.
- A. Path animation
 - B. Nonlinear animation
 - C. Linear animation
 - D. Trax animation
15. The drawback to using many _____ is that you'll have a harder time making smooth shape changes to broad regions.
- A. Uvalue
 - B. Attributes
 - C. CVs
 - D. Loft

16. The _____ is an editor that is useful for quickly examining the structure and components of a scene. You can also use this to quickly create an object hierarchy.
- A. Channel Box
 - B. Attributes Editor
 - C. Outliner
 - D. Graph Editor
17. With the _____ tool, a curve is rotated about an axis to create a surface.
- A. Soft select
 - B. Revolve surface
 - C. Loft
 - D. Rotation
18. By default, you must click at least _____ points to create a curve with the CV Curve Tool.
- A. Four
 - B. Six
 - C. Eight
 - D. Two
19. _____ ensures that only the object you want to work on is affected by your transformation.
- A. Volume Based Falloff
 - B. Surface based Falloff
 - C. Weight based Falloff
 - D. Transparent based Falloff
20. The _____ controls the falloff around the ridge of an object. By increasing the number, you ensure that the vertices spread evenly.
- A. Control Vertex
 - B. Falloff
 - C. Radius
 - D. Seam Tolerance

1. If you see blue color of the wireframe outline of an object, in Maya, we refer to it as being selected or active.
2. Selection of objects and components is a way of indicating to Maya that this particular item is to be affected.
3. The view cube is useful for viewing and editing basic information about the object.
4. The Time Slider is not involved in a driven key relationship and displays no red markers for keys.
5. With keyframe animation, Maya calculates the motion of the object for the animation based on the positions that were set at the keyframes.
6. With path animation the motion for the object is defined by its location along the animation curve.
7. When you create a clip, Maya creates a character set to contain the clip.
8. The view cube is useful for viewing and editing basic information about the object.
9. When you set a keyframe, you assign a value to an object's at a specific time.
10. A simple technique for creating NURBS surfaces is to create a curve for the profile of your desired form.
11. A skeleton is a hierarchy of bones that are connected together with joints.
12. When a parent constraint is applied to an object, the constrained object behaves as if it were a child node of the constraining object.
13. When you extrude a polygon component means you create additional polygon components from the ones you selected.
14. The Paint Selection Tool only selects components on the mesh that face towards the camera.
15. Lots of CVs mean slower processing time as you work with the curve.

Section C**Fill in the blanks****10 marks**

1. In Maya object's directional values are measured from its _____.
2. The _____ is displayed with two heavy lines intersecting at the center of the Maya scene.
3. _____ is a means of representing a three-dimensional object in two dimensions.
4. In _____, objects appear transparent except for the simple wire outline that indicates their position and general shape.
5. The _____ button displays a window for setting animation preference settings such as the playback speed.
6. The _____ controls the range of frames that play when you click the play button.
7. The animated attributes are represented by curves called _____.
8. A _____ is the parent of the hierarchy of clips and tracks for a particular animated object.
9. The _____ allows you to alter the original animation for a character by modifying its path or orientation at any time during its animation.
10. _____ is the formal description of motion.

Section D**Short/Long Answer Questions****55 marks****Question 1****[10 marks]**

1. What is a channel Box? **[0.5 mark]**
2. Differentiate between 2 dimension and 3 dimension design. **[1 mark]**
3. There are two ways you can select an object in Maya. Explain the ways? **[1 mark]**
4. When the plane objects are grouped together they create a hierarchy. What is hierarchy in this context? **[1 mark]**

- b. What do Source In and Source Out indicate? [1 mark]
- c. What does duration indicate? [1 mark]
- d. What does scale indicate? [1 mark]
- 3. Where does a clip's animation and other node reside? [1 mark]
- 4. Differentiate between soloing and muting tracks. Explain how they are useful. [3 marks]

Question 4

[15 marks]

- 1. Differentiate between Forward Kinematics and Inverse Kinematics. [2 marks]
- 2. What do you understand by the term parenting while working with hierarchies? [1 mark]
- 3. "Using the IK Handle to pose an IK chain is generally not a good practice."
Do you agree with the statement? If your answer is yes, than what else can be used instead of the IK handle? [2 marks]
- 4. Differentiate between point constraint and orient constraint. [2 marks]
- 5. What is the difference between dragging the time indicator on the time slider using the left mouse button and middle mouse button? [1.5 marks]
- 6. What is Falloff in Maya and how do you adjust the Falloff radius? [2 marks]
- 7. Differentiate between wireframe on shaded mode and shaded X-ray mode? [3 marks]
- 8. What is the importance of using transformation tools' reflection setting? [1.5 marks]

5. What is the advantage of templating the display of the objects in your scene? [1 mark]
6. What happens when you go to the view menu and select Panels > Layouts > Two Panes Stacked. [1 mark]
7. Explain the three primary methods for manipulating the camera view in maya? [1.5 marks]
8. Maya allows you to select items in different selection modes depending upon your specific needs. Name and explain the three main types of selection modes. [3 marks]

Question 2

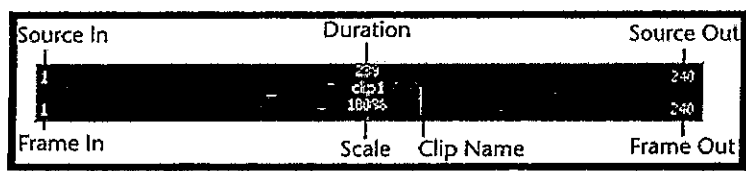
[10 marks]

1. What will be the duration of an animation, with a playback range of 1 to 528, at 24 fps? [1 mark]
2. What is a clip? [1 mark]
3. What is path animation? Explain with an example. [2 marks]
4. Differentiate between keyframe animation and set driven key animation. [2 marks]
5. The UValue refers to the curves *parameterization*. What is parameterization? [2 marks]
6. Blending between motion path and keyframe animation types is possible in Maya. What is Blending? Explain the advantage of blending. [2 marks]

Question 3

[10 marks]

1. "Nonlinear animation is a non-destructive process." Elaborate on this statement. [2 marks]
2. Refer to the figure and answer the questions that follow.



- a. What do Frame In and Frame Out indicate?

[1 mark]

1. For some advanced operations in Maya, you need to know the meaning of the start of a curve and the curve direction. Explain what you understand by start of a curve and the curve direction? **[2 marks]**
2. In the Graph Editor, what happens when you select Tangents > Linear? **[2 marks]**
3. What is the function of the Sculpt Geometry Tool in Maya? **[2 marks]**
4. What is the simple technique for creating NURBS surfaces? **[2 marks]**
5. Differentiate between Directional Light and Spot light. **[2 marks]**