



The University of Fiji

School of Science and Technology

Department of Information Technology and Computer Science



ITC326

Three Dimensional Designs

Semester II, 2012

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. The _____ operation paints over bumps to unwind most of the out of place surface features.
 - A. Pull
 - B. Smooth
 - C. Relax
 - D. Erase
2. In Maya the default frame rate is _____ frames per second, which is standard for films.
 - A. 30
 - B. 12
 - C. 24
 - D. 34
3. 3D perception is also known as _____.
 - A. Perspective Perception
 - B. Height Perception
 - C. Width Perception
 - D. Depth Perception
4. 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
5. 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

6. The _____ is an editor that graphically represents the various animated attributes in your scene.
- A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor
7. The _____ point specifies where the light focuses.
- A. eye
 - B. look-at
 - C. spot light
 - D. camera lens
8. The _____ point defines the position of the light source.
- A. eye
 - B. look-at
 - C. spot light
 - D. camera lens
9. The spotlight's default Cone Angle is _____ degrees.
- A. 30
 - B. 45
 - C. 40
 - D. 55
10. Path animation is useful for animating objects such as _____.
- A. Trains
 - B. Boats
 - C. Moving Cameras
 - D. All of the above
11. _____ Shadows refers to the algorithm Maya uses to produce shadows.
- A. Drop off
 - B. Penumbra
 - C. Light Fog
 - D. Depth Map

12. 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
13. 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
14. 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
15. 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
16. With the _____ tool, a curve is rotated about an axis to create a surface.
- A. Soft select
 - B. Revolve surface
 - C. Loft
 - D. Rotation

17. _____ 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
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

Section B**True/False Questions****15 marks**

1. Just like polygonal surfaces, subdivision surfaces also lets you extrude specific areas and create additional detail in your surfaces.
2. If you see blue color of the wireframe outline of an object, in Maya, we refer to it as being selected or active.
3. The Time Slider is not involved in a driven key relationship and displays no red markers for keys.
4. With path animation the motion for the object is defined by its location along the animation curve.
5. Point lights parallel rays strike all objects in the scene from a single direction as indicated by the arrow icon representing the light.
6. If the Attribute Editor suddenly appears empty, it indicates that no objects are selected in the scene.
7. When you create a light, the scene view displays its effect, by default.
8. You can only paint a surface in Maya if it has a material assigned to it.
9. The Paint Selection Tool only selects components on the mesh that face towards the camera.
10. The view cube is useful for viewing and editing basic information about the object.
11. When you set a Keyframe, you assign a value to an object's at a specific time.
12. A simple technique for creating NURBS surfaces is to create a curve for the profile of your desired form.
13. A skeleton is a hierarchy of bones that are connected together with joints.
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 standard mode, while dealing with subdivision surfaces, the different levels of refinement are referred to as _____.
2. The Shelf is located directly below the _____.
3. NURBS surfaces are created using one or more NURBS _____ that define the profile of the shape that you want for a surface.
4. In Maya object's directional values are measured from its _____.
5. The _____ is displayed with two heavy lines intersecting at the center of the Maya scene.
6. _____ is a means of representing a three-dimensional object in two dimensions.

7. In _____, objects appear transparent except for the simple wire outline that indicates their position and general shape.
8. The animated attributes are represented by curves called _____.
9. _____ are the darkened areas that appear on a surface when an object gets in the path of a light source.
10. After you model the surfaces that make up a human, animal, or other character, you create a skeleton and bind it to the character's surface called _____.

Section D	Short/Long Answer Question	55 marks
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<u>Question 1</u>	[10 marks]
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1. The UValue refers to the curves *parameterization*. What is parameterization?
[1.5 marks]
2. What is a channel Box?
[0.5 mark]
3. Differentiate between 2 dimension and 3 dimension design.
[0.5 mark]
4. There are two ways you can select an object in Maya. Explain the ways? [0.5 mark]
5. When the plane objects are grouped together they create a hierarchy. What is hierarchy in this context?
[1 mark]
6. What is the advantage of templating the display of the objects in your scene?
[1 mark]
7. What happens when you go to the view menu and select Panels > Layouts > Two Panes Stacked.
[0.5 mark]
8. Explain the three primary methods for manipulating the camera view in maya?
[1.5 marks]
9. 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]

<u>Question 2</u>	[10 marks]
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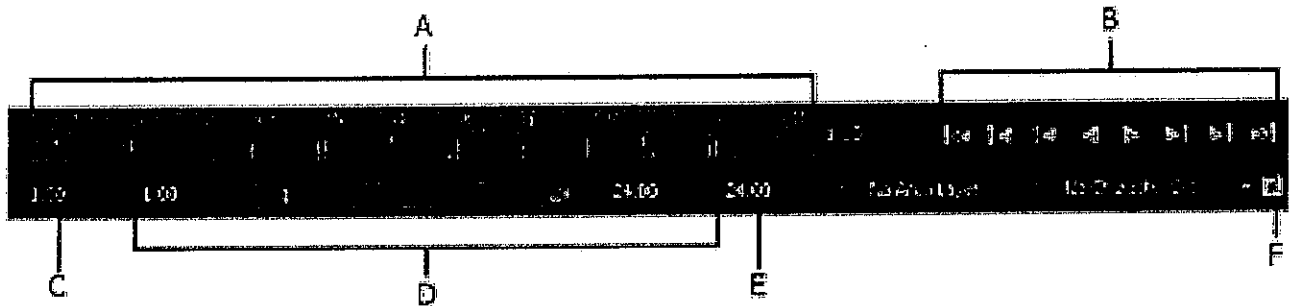
1. What will be the duration of an animation, with a playback range of 1 to 528, at 24 fps?
[1 mark]
2. What is path animation? Explain with an example.
[2 marks]

3. Differentiate between keyframe animation and set driven key animation.

[2 marks]

4. Label the Figure below and explain the function of each.

[5 marks]



Question 3

[10 marks]

1. Explain the importance of outliner in Maya. Give an example where it can be used.

[2 marks]

2. While working on subdivision surfaces, explain the difference between working with polygon proxy mode and standard mode.

[2 marks]

3. "Be prepared to work as the member of a team." Elaborate on this statement.

[2 marks]

4. There are ways to assign materials to a particular object. Explain two ways to assign materials to certain objects.

[1 mark]

5. Differentiate between Lambert and Blinn materials.

[2 marks]

6. Explain what a mirror joint tool does? Write the advantage of using this tool.

[1 mark]

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]

Question 5

[10 marks]

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. What is the function of the Sculpt Geometry Tool in Maya? [1 marks]
3. What is the simple technique for creating NURBS surfaces? [1 marks]
4. Differentiate between Directional Light and Spot light. [2 marks]
5. Write a short essay on the following: [4 marks]
 - Concept and fundamentals of three dimensional designs.
 - Advantages and its impacts on people's life.
 - Impact on businesses
 - Steps associated with three dimensional design and animation.

