



The University of Fiji

School of Science and Technology



Department of Computer Science/ Information Technology

ITC326

Three Dimensional Design

Semester II, 2014

Final Examination Question Paper

Time Allowed: 3 Hours [10 Minutes Extra Allowed For Reading the Paper]
Weighting: 40%
Total Marks: 100 marks.

Section A:

Multiple Choice - 20 marks

Section B:

Open Ended Question 1	-	10 marks
Open Ended Question 2	-	10 marks
Open Ended Question 3	-	10 marks
Open Ended Question 4	-	10 marks
Open Ended Question 5	-	10 marks
Open Ended Question 6	-	10 marks
Open Ended Question 7	-	20 marks

Total 100 marks

Instructions

- Show your answers clearly in each question to gain maximum marks.
- You may ask for extra sheets from the supervisors if the need arises.
- Do not forget to write your name and ID number on all the extra sheet(s) attached.
- Programmable calculators are not allowed.
- This exam paper contains 9 pages including the cover page.
- All questions are compulsory.

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. 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. The _____ is an editor that graphically represents the various animated attributes in your scene.
 - A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor
6. The _____ point specifies where the light focuses.

- A. eye
- B. look-at
- C. spot light
- D. camera lens

7. The _____ point defines the position of the light source.

- A. eye
- B. look-at
- C. spot light
- D. camera lens

8. The spotlight's default Cone Angle is _____ degrees.

- A. 30
- B. 45
- C. 40
- D. 55

9. Path animation is useful for animating objects such as _____.

- A. Trains
- B. Boats
- C. Moving Cameras
- D. All of the above

10. Under Hierarchy and Combinations selection mask, _____ 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

11. 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

12. If you were to display the scene with Panels > Layouts > Four Panes, and you are working on the top view, _____ panel will show the ball moving after playing the animation.

- A. Persp
- B. Top
- C. Side
- D. Front

13. 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

14. 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

15. _____ 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

16. Just like subdivision surfaces, _____ also lets you extrude specific areas and create additional detail in your surfaces.

- A. polygonal surfaces
- B. NURBS surface
- C. volume Primitive
- D. plain images

17. 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 control
- B. Playback End Time control
- C. Playback Start Time control
- D. None of the above

18. 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

19. In _____ mode, objects appear transparent except for the simple wire outline that indicates their position and general shape.

- A. Shaded
- B. Wireframe
- C. x-ray
- D. shaded on x-ray

20. Yellow represents areas of low falloff while _____ represents areas of high falloff.

- A. red
- B. green
- C. black
- D. maroon

Question 1

[10 marks]

- a. There are many types of camera shots in the area of cinematography. Explain the 4 mostly used camera shots. [4 marks]
- b. Define the term channel box. [0.5 mark]
- c. Explain the three primary methods for manipulating the camera view in maya? [1.5 marks]
- d. 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]
- e. Elaborate on the term rigging. [1 mark]

Question 2

[10 marks]

- a. Light plays an important role in cinematography. The design, intensity, and colour of lighting help to tell the story. Explain the three most important types of lights used by the lighting director to adjust the mood of the scene. [3 marks]
- b. Sakiyasa has animated a character and while adding light to the scene he wants his character to cast a shadow. Explain how Sakiyasa can add shadow to his scene. [1 mark]
- c. Differentiate between parenting and grouping. [1 mark]
- d. What is motion path animation? [0.5 mark]
- e. What do we call the menu that pops up when you do a right click on the object on the workspace? [0.5 mark]
- f. Differentiate between orthographic and Perspective view. [2 marks]
- g. When the plane objects are grouped together they create a hierarchy. What is hierarchy in this context? [1 mark]
- h. Elaborate on the term Depth Perception? [1 mark]

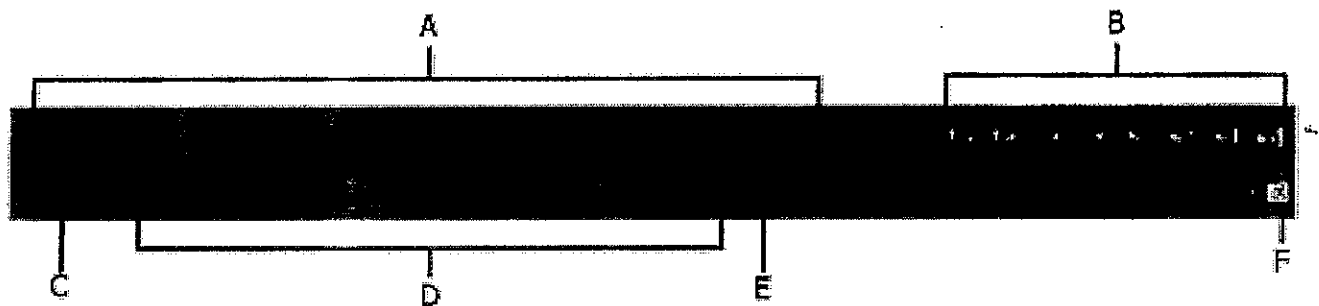
Question 3

[10 marks]

- a. What is the advantage of templating the display of the objects in your scene? [1 mark]
- b. What will be the duration of an animation, with a playback range of 1 to 528, at 24 fps? [1 mark]

c. Differentiate between keyframe animation and set driven key animation. [2 marks]

d. Label the figure below and explain the function of each. [5 marks]



e. There are ways to assign materials to a particular object. Explain two ways to assign materials to certain objects. [1 mark]

Question 4 [10 marks]

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

b. "Be prepared to work as the member of a team." Elaborate on this statement. [2 marks]

c. Explain what a mirror joint tool does? Write the advantage of using this tool. [1 mark]

d. Kaliopasa is working on a 3d project, where he has to add lights in a room and animate it through a camera. He is bit confused on how to do this. Help Kaliopasa to:

I. Add a spot light. [0.5 mark]

II. Prevent the spot light from passing through the concrete wall. [1.5 marks]

III. Add a camera in the scene. [0.5 mark]

IV. Animate the camera to create the animation. [2 marks]

V. Playblast and see the animation. [0.5 mark]

Question 5 [10 marks]

a. John wants to reposition his object 100 units left and 12 units up from the origin and needs your help. Explain and help John move the object in Maya. [0.5 mark]

b. What is Falloff in Maya and how do you adjust the Falloff radius? [2 marks]

- c. 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]
- d. After the skeleton is ready, attaching the object takes place. So while attaching the skeleton to the character and moving it, smooth skin deformation occurs at most places on the body. Explain two ways to improve the smooth skin deformations. [2 marks]
- e. Explain the importance of outliner in Maya. Give an example where it can be used. [2 marks]
- f. Differentiate between Forward Kinematics and Inverse Kinematics. [2 marks]

Question 6 [10 marks]

- a. What is the use of soft modification tool? [1 mark]
- b. Write the process of changing the pivot position of an object in Maya? [1 mark]
- c. Name four types of lights used in maya apart from spot light and directional light. [2 marks]
- d. Write the process of inserting "CV" to a curve. [1 mark]
- e. Write the steps to insert edge in maya. [1 mark]
- f. What is 3d printing? Explain how the 3d printer works? [3 marks]
- g. Write the process of sewing shell edges together in the UV texture editor. [1 mark]

Question 7 [20 marks]

- a. Differentiate between Lambert and Blinn materials. [2 marks]
- b. What is the importance of using transformation tools' reflection setting? [1 mark]
- c. Differentiate between point constraint and orient constraint. [2 marks]
- d. How do you import reference image in the side view. [2 marks]
- e. In the Graph Editor, what happens when you select Tangents -> Linear? [2 marks]
- f. Jone has created and rendered a scene in Maya, but forgot to add lights to his scene. Elaborate on the end result of that scene in regards to lights. [1 mark]
- g. What is the simple technique for creating NURBS surfaces? [2 marks]

- h. Explain the characteristic/ feature of a UV texture editor. **[2 marks]**
- i. Explain the feature of revolve surface tool. **[1 mark]**
- j. The overall production process is divided into three major phases: preproduction, production and postproduction. Explain in detail, what happens in these three phases. **[5 marks]**

End of Exam

