



The University of Fiji

Undergraduate Programme

Department of Computer Science and Information Technology

Semester 2 Year 2017

FINAL COURSE EXAMINATION PAPER

ITC326: Three Dimensional Design

Important Instructions to Students:

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an extra 10 minutes reading time (during this time, you are not allowed to write with pen) and 180 minutes (3 Hours) to complete this paper.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. This Final Course Examination Paper is worth 100 marks contributes 40% of the total course assessments.
6. This paper contains three (3) sections A, B and C. All questions are compulsory to answer.
7. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
8. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

Examination Paper Content (Format):

<u>Section</u>	<u>Question</u>	<u>Content</u>	<u>Marks</u>	<u>Suggested Time</u>
A	1-20	Multiple Choice	20	36 mins
B	4	Open Ended Question	60	108 mins
C	1	Essay Question	20	36 mins
		TOTAL	100	180 mins

1. 3D perception is also known as _____.
 - A. Perspective Perception
 - B. Height Perception
 - C. Width Perception
 - D. Depth Perception

2. 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

3. The _____ is an editor that graphically represents the various animated attributes in your scene.
 - A. Visor
 - B. Hypergraph
 - C. Graph Editor
 - D. Trax Editor

4. The _____ point specifies where the light focuses.
 - A. eye
 - B. look-at
 - C. spot light
 - D. camera lens

5. The _____ point defines the position of the light source.
 - A. eye
 - B. look-at
 - C. spot light
 - D. camera lens

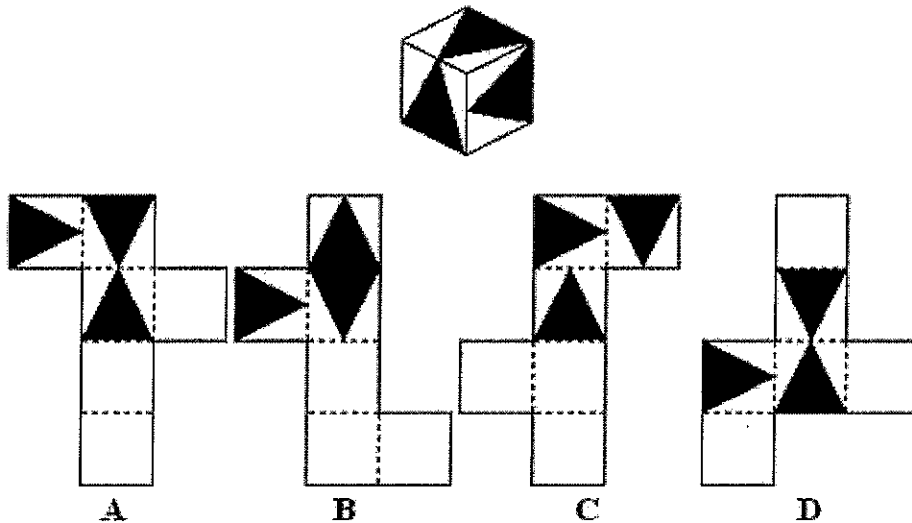
6. A _____ is a specific position in 3D space that is used as a reference for the transformations of objects.
 - A. Origin
 - B. Controller
 - C. Tangents
 - D. Pivot point

7. With the _____ tool, a curve is rotated about an axis to create a surface.
- A. Soft select
 - B. Revolve surface
 - C. Loft
 - D. Rotation
8. 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
9. 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
10. A _____ is a collection of attributes that define color and other surface characteristics of the plane it is assigned to.
- A. Components
 - B. History
 - C. Colour palettes
 - D. Shader
11. 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
12. Yellow represents areas of low falloff while _____ represents areas of high falloff.
- A. red
 - B. green
 - C. black
 - D. maroon

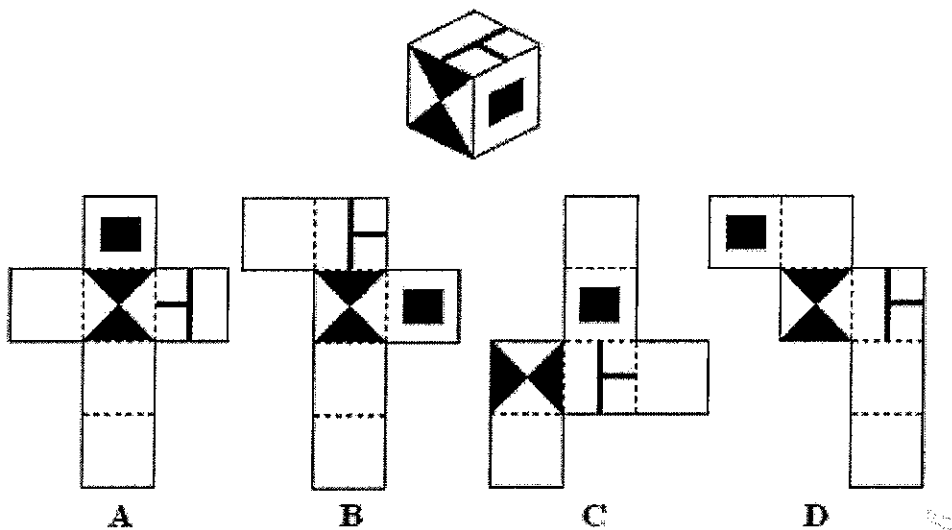
13. Jone is working in the hypergraph window with multiple nodes like arm_lh, leg_lh, leg_rh, joint_1, joint_2 etc. He wants to parent two nodes named arm_rh and root where root will be the parent node, which node should he select first.

- A. arm_rh
- B. root
- C. joint_1
- D. leg_rh

14. Which pattern can be folded to make the cube shown?



15. Which pattern can be folded to make the cube shown?



16. In _____ mode, objects appear transparent with the simple wire outline that indicates their position and general shape.
- A. Shaded
 - B. Wireframe
 - C. x-ray
 - D. shaded on x-ray
17. Area of _____ falloff is affected less by transformations to selected components than areas of _____ falloff.
- A. High, low
 - B. Low, high
 - C. Low, medium
 - D. Medium, low
18. _____ is also called skinning.
- A. Painting
 - B. Texturing
 - C. Binding
 - D. Rigging
19. _____ is the general term used for the preparation of 3D models with their accompanying joints and skeletons for animation.
- A. Painting
 - B. Texturing
 - C. Binding
 - D. Rigging
20. The Time Slider is not involved in a/an _____ animation and displays no red markers for keys.
- A. driven key
 - B. motion path
 - C. key frame
 - D. masking

Section B. Open Ended Question

Question 1

[15 marks]

- A. The UValue refers to the curves parameterization. What is parameterization? [1.5 marks]
- B. What is a channel Box? [0.5 mark]
- C. Differentiate between 2 dimension and 3 dimension design. [0.5 mark]
- D. There are three ways you can select an object in Maya. Explain the ways? [1.5 marks]
- E. When the plane objects are grouped together they create a hierarchy. What is hierarchy in this context? [1 mark]
- F. What is the advantage of templating the display of the objects in your scene? [1 mark]
- G. What happens when you go to the view menu and select Panels > Layouts > Two Panes Stacked. [0.5 mark]
- H. Explain the three primary methods for manipulating the camera view in maya? [1.5 marks]
- I. 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]
- J. Differentiate between keyframe animation and set driven key animation. [2 marks]
- K. What is the difference between dragging the time indicator on the time slider using the left mouse button and middle mouse button? [0.5 mark]
- L. How do you import reference image in the side view. [1 mark]
- M. To extrude an object, name the mode into which you will have to enter? [0.5 mark]

Question 2

[10 marks]

- A. In the Graph Editor, what happens when you select Tangents > Linear? Explain the purpose of breaking the tangents after selecting the key. [2 marks]
- B. "Using the IK Handle to pose an IK chain is generally not a good practice." Elaborate on the statement. [2.5 marks]
- C. 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]
- D. Differentiate between parenting and grouping. [1 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. What is Depth Perception? [1 mark]

Question 3**[15 marks]**

- A. Differentiate between snap to grids and snap to points. [1 mark]
- B. What is the purpose of the self-section in the Maya user interface? [1 mark]
- C. Payaal created two models in Maya and wants to put those models in different layers. Explain her how to create a new layer and how to add the models in those layers. [1.5 marks]
- D. Why is the wireframe mode faster than the shaded mode? [0.5 mark]
- E. Outliner and hypergraph are two different windows but they serve similar functions. Elaborate on the similarities of these windows. [2 marks]
- F. Before you constrain the IK handle to the control object, you need to freeze the transformations for the control object. Explain what you mean by freeze transformation and why you need to freeze the transformation. [2 marks]
- G. Komal is working on a polygonal primitive in Maya and wanted to change the texture material from the Attribute Editor. She opened the Attribute Editor but was empty. Explain why the attribute editor is empty. [0.5 mark]
- H. Differentiate between point constraint, orient constraint and parent constraint. [3 marks]
- I. An object can have multiple constraints applied to it. The influence each constraint has on the object can be changed by modifying some attribute. Explain the attribute which needs modification. [1 mark]
- J. Viraj has completed creating the joints for the left leg and wants to create for the right one. Explain the steps to him where the joints will be created without redoing it. [1.5 marks]
- K. In the move tools setting windows, what happens when you turn on reflection and set the reflection axis to X? [1 mark]

Question 4**[20 marks]**

- A. 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]
- B. What is bridging in Maya (Edit Mesh > Bridge)? When using the bridge feature, you must ensure two things, explain those two things. [2 marks]
- C. What happens to the menu bar when a user toggles through the menu set? [0.5 mark]

- D. Deepika wants to reposition her model 100 units left and 12 units up from the origin and needs your help. Explain and help her move the object in Maya. [0.5 mark]
- E. What is motion path animation? List four objects where path animation is used. [1 mark]
- F. Name four types of lights used in maya apart from spot light and directional light. [2 marks]
- G. Write the steps to insert edge in maya. [1 mark]
- H. Elaborate on the term rigging. Explain the 6 basic steps that are involved. [4 marks]
- I. Write the steps to create and animate a cube moving and rotating from left to right on the workspace. [4 marks]

Section C. Essay Question

[20 marks]

- A. Printing is creating a hard copy of something in a digital form. Three Dimensional printing is taking the world by storm. It is changing the world around us. Write an essay on what you think about 3d printing and its use in the developing countries. Elaborate on the advantages and challenges and what is your opinion on the future of 3d printing. [10 marks]
- B. Animation was borne out of different reasons. Write an essay and elaborate on its usage in different sectors. Elaborate on the advantages and disadvantages of animation in these sectors with examples. Also state your opinion on using animation locally and its impact on our economy. Please stick your focus on 3d animation. [10 marks]

End of Exam