

Total number of printed pages: 2

Programme (UG/4th/UMCD402)

2025

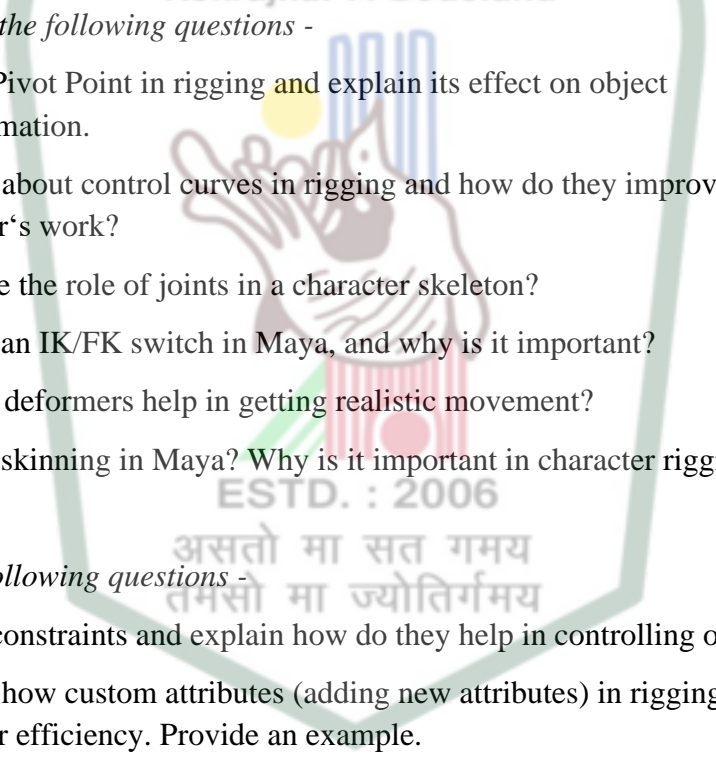
Rigging for 3D Animation

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

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- 1. a) Answer the following questions -** **5 x 3=15**
- i) Define Pivot Point in rigging and explain its effect on object transformation.
 - ii) Explain about control curves in rigging and how do they improve animator's work?
 - iii) What are the role of joints in a character skeleton?
 - iv) What is an IK/FK switch in Maya, and why is it important?
 - v) How do deformers help in getting realistic movement?
- b) What is skinning in Maya? Why is it important in character rigging?** **2+3**
- 2. Answer the following questions -** **4 x 5=20**
- i) Define constraints and explain how do they help in controlling objects?
 - ii) Explain how custom attributes (adding new attributes) in rigging improve animator efficiency. Provide an example.
 - iii) Describe the role of joints in a character skeleton.
 - iv) Name two animation scenarios where FK would be more useful than IK.
- 3. a) Explain Forward Kinematics and Inverse Kinematics in detail with practical examples of their applications.** **5+5**
- b) Explain about lattice and jiggle deformers in Maya with illustrations.** **5+5**

4. a) What is blend shape deformer? Explain its use in facial animation with example and appropriate illustrations. 5+5
- b) Write a short note on bend, twist, flare, wave and sine non-linear deformers in Maya. Include their basic function and use with illustrations. 10
5. a) Briefly explain the process of binding a skin to a skeleton in Maya. Explain the role of weight painting in the skinning process. 5+5
- b) What is dual quaternion skinning, and how is it different from classic linear skinning? 10
6. a) What is a Set Driven Key in Maya? Explain its function and workflow with one practical example from character rigging. 10
- b) Explain about any five of the key tools or panels available under the Rigging workspace in Maya, and how do they assist in the character rigging process? 10
7. a) Describe the process of setting up a human hand rig with FK/IK switch for flexible movement. 10
- b) Below there is a sketch of minion character with construction lines and heights. Draw and label the joint chains for it creating the skeletal structure with appropriate naming. Use the image for reference on where to place the joints. 10

