2023

LIGHTING IN ANIMATION

Full Marks: 100

Time: Three hours

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

Answer **Question No. 1** and *any four* from the rest.

1. A) Fill in the blanks: (10x1 = 10)

    i.   The innermost and darkest part of a shadow is called _____.
    ii.   The most commonly used colour wheel has _____ colours.
    iii.   The colour wheel is based on the _____ colour model.
    iv.   The strength or purity of a colour is known as _____
    v.   Luminosity is referred to as the _____ of light.
    vi.   By default, the value of a Spot Light's *Cone Angle* is _____.
    vii.   Increasing the value of _____ attribute in *Depth Map Shadow* will soften the shadow.
    viii. *Out Colour* attribute is found in a _____ shader.
    ix.   The default *Render* layer in Autodesk Maya is called _____.
    x.   Rim Light is also known as _____.

    B) Choose the correct answer from the following questions: (10x1=10)

    i)   Which artificial light in Autodesk Maya is capable of recreating illumination similar to a light bulb?

        a)   Dim Light
        b)   Volume Light
        c)   Key Light
        d)   Point Light

    ii) In a Volume Light, which light shape is *not* available?

        a)   Sphere
        b)   Cube
        c)   Cylinder
        d)   Cone

iii) *Depth Map Shadow* attribute is absent in:

    a)   Area Light
    b)   Volume Light
    c)   Directional Light
    d)   Ambient Light

iv) Which artificial light in Maya does not have the *Emit Specular* attribute?

    a)   Volume Light
    b)   Area Light
    c)   Ambient Light
    d)   Point Light

v) Apart from Ambient Light, which other light does not have *Light Effects* attributes?

    a)   Area Light
    b)   Volume Light
    c)   Directional Light
    d)   Spot Light

vi) The *Bounding Box* feature is located under:

    a)   View tab
    b)   Shading tab
    c)   Lighting tab
    d)   Show tab

vii) What is the key combination to create shortcut icons of various attributes or objects on a Shelf in Autodesk Maya?

    a)   Ctrl + Alt + Middle Mouse Button
    b)   Ctrl + Shift + Left Mouse Button
    c)   Ctrl + Alt + Left Mouse Button
    d)   Ctrl + Shift + Middle Mouse Button

viii) Hypershade is located under:

    a)   Window > General Editor
    b)   Window > Attribute Editor
    c)   Window > Rendering Editor
    d)   Window > Animation Editor

ix) Decay rate is absent in:

    a)   Point Light
    b)   Area Light
    c)   Volume Light
    d)   Spot Light

x) The default image size resolution in Render Settings of Autodesk Maya is:

    a)   320 x 240
    b)   640 x 480
    c)   800 x 600
    d)   1024 x 800

2. A) What is Intensity of Light? Describe Negative Intensity and its use. (10)
   B) What is *direct light* and *indirect light*? Explain with suitable examples. (5+5)

3. A) What are the functions of the following attributes of a CG light: (6)
     i) Illuminates by Default
     ii) Emit Diffuse
     iii) Emit Specular
   B) What is the Penumbra Angle? Explain with suitable diagrams (4)
   C) What is a Gobo? How does it help you in CG Lighting? (10)

4. A) Describe the Barn Door attribute of a Spot Light with suitable diagrams. (10)
   B) What is Light Leaking and how can you fix it? (5)
   C) Briefly describe the 'decay' attribute found in a Spot light. What are the different decay rates available within that attribute?? (5)

5. A) Explain the terms "Rendering in Layers" and "Rendering in Passes". (5+5)
   B) What are the different Render Passes in Lighting? Explain them. (10)

6. A) What are light rigs and why are they used? (5)
   B) Why is it important to use naming convention for lighting files? (5)
   C) What are the key inputs you look for before lighting a scene? (10)

7. Write short notes on *any four* of the following: (4x5 = 20)
   A) Ambient Light
   B) Rim Light
   C) Intensity Curve
   D) Colour Bleeding.
   E) Caustics
   F) Light Linking

****