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B.Sc. (VCMT)-VIth SEMESTER

3D Modeling and Visual Effect

(B.Sc. VCMT 601-23)

Time : 3 Hours] [Maximum Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART – A

1. (a) What is a polygon in 3D modeling? (1.5)

(b) Define the term 'Topology' in the context of 3D modeling. (1.5)

(c) What is the difference between organic and inorganic modeling? (1.5)

(d) Name any *two* software used for 3D texturing and coloring. (1.5)

(e) What is UV mapping? (1.5)

(f) Define 'Low Poly' modeling. (1.5)

(g) What is a 'Proxy Mesh'? (1.5)

(h) List any two Visual Effects techniques used for creating smoke or fire. (1.5)

(i) What is FumeFX? (1.5)

(j) Define 'Matte Painting' in VFX. (1.5)

PART – B

2. (a) Explain the fundamental concepts of 3D modeling. How do lines, planes, and geometrical shapes contribute to creating 3D objects? (10)

(b) Describe the concept of 3D space, including coordinates, axes, and transformations (translation, rotation, scaling). (5)

3. (a) What is organic modeling? Explain its characteristics and applications with suitable examples. (5)

(b) Discuss the process of modeling an object (e.g., a car or robot) using reference images and blueprints. Explain the role of texturing, materials, and lighting in making the model realistic. (10)

4. Differentiate between Low Poly and High Poly modeling. Explain their respective uses in games, animation, and visual effects. Discuss the role of deformers and modifiers in 3D object creation. (15)

5. (a) What is a proxy mesh? Explain its concept and importance in product modeling. (5)

(b) Describe the process of creating a detailed 3D environment. Name the software commonly used for this purpose and explain their key features. (10)

6. (a) Explain the role of FumeFX in creating blast and explosion effects. Discuss the step-by-step workflow for creating such effects. (10)

(b) What are advanced particle effects? Explain how fire, smoke, and water simulations are created in VFX software. (5)

7. What is Visual Effects (VFX)? Discuss various VFX techniques used in the industry. Explain the process of creating effects like smoke, fire, and candle light using software tools. (15)