

Types Sem V

30/11/2018

Paper / Subject Code: 82907 / Game Programming

(Time: 2 1/2 Hours )

(Total Marks:75)

- N.B 1) All questions are compulsory
- 2) Figures to the right indicate marks
- 3) Mixup of questions not allowed

Q1a Choose the correct answer from the given options:

5

- 1 The relation between vertices, faces and edges of a 3D Polygon object is given as  
 a) Vertices= faces - edges +2     b) Vertices= faces + edges+2  
 c) Vertices= faces - edges --2     d) Vertices= faces+ edges --2
- 2 The basic building block in 3D object model is  
 a) Rectangle     b) triangle     c) polygon     d) cube
- 3 Which one of the following is not a valid geometric transformation  
 a) Scaling     b) Revolution     c) Rotation     d) Reflection
- 4 The API used in Unity 3D is  
 a) OpenGL     b) Direct3D     c) OpenGL ES     d) Proprietary API
- 5 The process of computing pixel color from projected 3D triangle is known as  
 a) Blending     b) Shading     c) Rasterization     d) positioning

Q1b Answer in one or two sentences:

5

- 1 Mention the four co-ordinate systems used in graphics pipeline
- 2 What is the relation between a Quaternion and its inverse
- 3 State the Pythagoras theorem for 3D
- 4 Mention the use of interpolant in computer graphics
- 5 Define the Term Virtual Reality and give its application

Q1c Fill in the blanks taking answer from the pool of values:

5

[ Controller, Swapping, Double, Presenting, Animation, Stencil, Tessellation, Translation, Rigidbody ]

- 1 Interchanging the roles of back buffer and front buffer is called -----
- 2 A 8 bit ----- Buffer is always attached to depth buffer
- 3 Subdividing the triangles of a mesh to add new triangles is called -----
- 4 ----- allow game objects to act under the control of Physics Engine.
- 5 Manipulating images and objects in dynamic medium as moving images is called-----

Q2 Answer any Three from the following:

15

- 1 Define Lambert's law and explain its use in lighting calculation
- 2 Explain in detail the stages in the rendering pipeline
- 3 Describe any two 2D transformation in detail
- 4 Bring out the advantages of GPU architecture
- 5 Differentiate between super sampling and multisampling techniques
- 6 Write a short note on Direct 3D Feature levels

Q3 Answer any Three from the following :

15

- 1 What are B-Splines .State its types and advantages
- 2 Describe the steps in perspective projection
- 3 Explain the procedure of interpolating two Vectors
- 4 Obtain the Hessian Normal form for a straight line
- 5 Describe the intersection points of two straight lines
- 6 Write a short note on Quarternions

Q4 Answer any Three from the following :

15

- 1 Explain the use of asset and asset store in unity 3D
- 2 Define HMD and explain any two such devices
- 3 What is meant by specular lighting
- 4 Explain the term MR and state its applications
- 5 Describe how a material is associated with a game object in Unity 3D.
- 6 Explain the following functions with example Update() and FixedUpdate():

Q5 Answer any Three from the following:

15

- 1 Describe how parallelism is achieved in GPU Architecture
- 2 Explain the depth buffering technique applied on Graphic objects
- 3 Write a short note on Linear Interpolation
- 4 Explain the AddForce method used with Scripting in Unity
- 5 Define Components and explain how they are used with game objects

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