Paper / Subject Code: 82907 / Game Programming
(Time: 21/2Hours )                    (Total Marks:75)

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

Q1aChoose the correct answer from the given options                    :5
1The 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

5The process of computing pixel color from projected 3D triangle is known as
a) Blending
b) Shading
c)Rasterization
d) positioning

Q1bAnswer in one or two sentences:                    5
1 Mention the four co-ordinate systems used in graphics pipeline
2 What is the relation between a Quarternion and its inverse
3 State the Pythagoras theorem for3D
4 Mention the use of interpolant in computer graphics
5 Define the Term Virtual Reality and give its application

Q1cFill in the blanks taking answerfrom the pool of values:
[ Controller,Swapping, Double,Presenting,Animation,Stencil,
Tessellation,Translation,Rigidbody]                    5

 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
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4--------------allow game objects to act under the control of Physics Engine.
5nManipulating images and objects indynamic medium as moving images is
called----------------

Q2Answer 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

Q3Answer 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 assest and assest storein 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 objectin 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 object
3 Write a short note on Linear Interpolation
4 Explain the AddForce method used with Scripting inUnity
5nDefine Components and explain how they are used with game object