Duration 2$^{1/2}$ Hours   **Marks:75**

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

Q1 a   Choose the correct answer from the given options   **5**
1   Identify the technique used to avoid flickering in animation

a)Blending   b) Swap chain   c) z-Buffering   d) None
2   Which one of the following is not a directx11 library

a)d3dll.lib   b) d3dx11d.lib   c) dxerror.lib   d) dxgi.lib
3   Light bulb is a typical example of

a) Point light   b) Parallel light   c) Spot light   d) None of the above

4   Which is the color that controls colour transparency

a)Green   b)Alpha   c)Blue   d)Red
5   Using right hand rule ,the angle of rotation about the x axis is called

a)Roll   b)yaw   c) pitch   d) None
Q1 b   Answer in one or two sentences   **5**

1   Define 2D reflection
2   What is the task of input assembler stage in rendering pipeline
3   Define Clipping
4   Centre of gravity of a triangle
5   What are colliders in Unity

Q1 c   Fill in the blanks taking value from the pool   **5**
         (Blending, Network manager, Gravity, Start, AR,VR)
1   The------------------method will be called if a GameObject is active
2   All rigid bodies are associated with ----------------- feature
3   ------- is a technique used to identify pixels of an object in front of
         another
4   Pokemon Go is a typical example of-------------------experience
5   The features of Multi player game is managed by -------------------

Q2   **Answer any Three from the following**   **15**

1   Explain in detail the different 2D transformations
2   Describe the use of Lambert's law in lighting calculation
3   Write a short note on direction cosines
4   Define the term swap chain and explain how it is implemented
5   Describe the stages in rendering pipeline
6   Define a Shader and explain any two GPU shaders

Q3   **Answer any Three from the following**   **15**

1   Describe the process of interpolating two vectors
2   Explain cubic interpolation
3   Obtain the intersection points of two straight lines and two line segments
4   Describe the use of hessian normal form
5   Obtain the point of intersection of a circle with straight line
6   Write a short note on uniform B-Spline

Q4   **Answer any Three from the following**   **15**

1   What are smart Glasses? State their application
2   Define HMD and explain any two such devices
3   Describe the management of multiple players in game development
4   Define AR and give its applications
5   Explain Prefab in Unity
6   Discuss start() and update() methods in unity C# script

Q5   **Answer any Three from the following**   **15**

1   Describe the features of GPU
2   Explain the multisampling antialiasing technique
3   Write a short note on interpolating quarternions
4   Explain the terms Hierarchy, asset, and scene in relation to unity
5   Define Components and explain how they are used with game objects

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