

(2 ½ Hours)

[Total Marks: 75]

- N.B. 1) All questions are compulsory.
2) Figures to the right indicate marks.
3) Illustrations, in-depth answers and diagrams will be appreciated.
4) Mixing of sub-questions is not allowed.

Q. 1 Attempt all. (Each of 5 marks)

(15)

(A) Choose the correct alternative.

(10)

(i) Which of the following transformation techniques is responsible for altering (either enlarging it or diminishing it) the size of the object?

- (a) Translation
- (b) Scaling
- (c) Rotation
- (d) Reflection

(ii) _____ is the angle of rotation about the y-axis

- (a) roll
- (b) pitch
- (c) yaw
- (d) None

(iii) Which of the following stage implements blending and transparency?

- (a) Pixel Shader stage
- (b) Output Merger Stage
- (c) Geometry Shader Stage
- (d) Tessellation stage

(iv) The properties of any Game Object Component is shown by _____ window.

- (a) Scene
- (b) Inspector
- (c) Grid
- (d) Asset

(v) _____ method is called once per frame after update is finished.

- (a) FixedUpdate
- (b) Update
- (c) LateUpdate
- (d) LastUpdate

(vi) Converting a vector into a unit form is called as _____?

- (a) Positioning
- (b) Adding
- (c) Normalizing
- (d) Changing

(vii) _____ Law deals with visibility of Object.

- (a) Lambert
- (b) Euler's
- (c) McCall
- (d) Pythagoras

- (viii) Feature DirectX 9.1 is indicated by
- (a) D3D_FEATURE_LEVEL_9_1=0x9100
 - (b) D3D_FEATURE_LEVEL_9_2=0x9200
 - (c) D3D_FEATURE_LEVEL_9_3=0x9300
 - (d) D3D_FEATURE_LEVEL_9_0=0x9000
- (ix) Which one of the following is not a Light source?
- (a) Directional Light
 - (b) Spot Light
 - (c) Spot Light
 - (d) Point Light
- (x) The method used to make our camera point at an object is _____?
- (a) LookAt()
 - (b) ViewAt()
 - (c) ShowAt()
 - (d) pointAt()

(B) Fill in the blanks.

(5)

{Physics, Euler's Law, Prefab, counterclockwise, '.', Lambert's law 'X', clockwise}

- (i) The _____ symbol is used to represent scalar multiplication.
- (ii) Positive values for the rotation angle Θ defines _____ rotation about the rotation point.
- (iii) To calculate intensity of the light _____ law is used.
- (iv) OnCollisionEnter function is a type of _____ Event.
- (v) Configured game objects that can be used in the project are called _____

Q.2 Attempt the following:(ANY THREE)

(15)

- (A) Write a short note on Theorem of Pythagoras in 2D and 3D
- (B) Explain in brief the situation which leads to gimbal lock.
- (C) What is transformation? State and explain the concept of translation in 2D and 3D.
- (D) Explain the concept of perspective projection.
- (E) Explain how Dot product helps in Back Face Detection?

Q.3 Attempt the following:(ANY THREE)

(15)

- (A) Explain the following terms with respect to geometry:
 - a. Angles
 - b. Isosceles triangle
 - c. Golden Section
 - d. Equilateral triangle
 - e. Circle
- (B) What are the steps followed by Vertex Shader Stage to project object on frustum?
- (C) How is the Texture Resource view implemented in DirectX?
- (D) Differentiate between Bezier Curve and B-Spline Curve.
- (E) Discuss implementation of Diffuse Light.
- (F) What is Direct3d? Explain its Components

Q.4 Attempt the following:(ANY THREE)

(15)

- (A) Describe the Anatomy of a script file
- (B) Define AR and explain its applications in the Entertainment sector.
- (C) Write C# script to declare a integer variable time and another variable greetings as GUIText. If time is > 12 set greetings as "good Morning" otherwise "Good Evening" in the Update method.

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- (D) Explain the use of Vuforia platform
- (E) Explain the steps to create and run a simple animation clip.
- (F) Differentiate between Holographic device and Immersive Device

Q. 5 Attempt the following:(ANY FIVE)

(15)

- (A) Explain in detail Direction Cosine.
- (B) Explain 2D Rotation about an Arbitrary Point.
- (C) Write a note on SINE and COSINE rule.
- (D) Explain Blender Programs.
- (E) Explain initialisation Events in Unity.
- (F) Explain the concept of Depth Buffering.
- (G) Illustrate the concept of a homogeneous coordinate system.
- (H) Write a short note on event scripting.
