TY B.Sc CS Sem-V
Nov-22

Paper / Subject Code: 82907 / Game Programming

(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 9.1is 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) Sport 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.

(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.

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