(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 ANY FOUR from the following: **(20M)**

(a) Explain in detail Cross Product or Vector product with suitable examples.
(b) Explain the concept of Colour in 3D Modeling and rendering.
(c) State and explain Lambert's cosine law with suitable examples.
(d) How does Dot product help in Light Intensity calculation?
(e) Write a short note on trigonometric interpolation.
(f) Explain 2D reflection and 2D shearing.

Q. 2 Attempt ANY FOUR from the following: **(20M)**

(a) Explain various feature levels in Direct 3D.
(b) Write a note on Corona SDK and Sprite Kit.
(c) Explain multisampling theory.
(d) What is game logic? Describe the necessary components for game logic system.
(e) Describe any five mobile gamming tools.
(f) Write a note on PyGLM.

Q. 3 Attempt ANY FOUR from the following: **(20M)**

(a) What is Canvas Screen Space in Unity, and how does it affect UI
(b) Explain the UI elements in Unity and describe the primitive data types used in Unity.
(c) Explain the concepts of Animation, Scripting, and the process of publishing games and setting up Build Settings in Unity.
(d) Describe UI elements and particle effects in Unity.
(e) Define the terms Assets and Materials in Unity, and explain how physics materials are applied to game objects
(f) What types of looping statements are available in Unity, and how do they work?

Q. 4 Attempt ANY FIVE from the following: **(15M)**

(a) Write a short note on the homogeneous Coordinate system.
(b) Write any three features of 2D Pygame.
(c) What is the purpose of Colliders in Unity?
(d) How does Animation work in Unity, and what role does it play measure its components. Perform addition and subtraction of vector
(e) Write a short note on types of vectors
(f) Given a square with coordinate points A(0, 2), B(2, 2), C(2, 0), D(0,0) Find the reflection of the square with respect to x-axis and y-axis and origin and Obtain the new coordinates of the square.

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