Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011) University under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Roll no.....

Name of the Program and semester: Diploma CSE (VI)
Name of the Course: Computer Graphics
Course Code: DTCS 606

Time: 3 hour

Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question is 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks)

a. Define Computer Graphics and explain its applications in different domains. (CO1)

b. Compare Raster Scan and Random Scan display systems with diagrams. (CO1)

c. Explain the working of a Refresh Cathode Ray Tube with a neat diagram. (CO1)

Q2. (2X10=20 Marks)

a. Represent the point (3, 4) using homogeneous coordinates and explain its significance. (CO2)

b. Perform matrix multiplication for two given 2x2 matrices and interpret the result in context of transformation. (CO2)

c. If A = (3, 2) and B = (1, 4), find:
i) A + B ii) A • B (dot product) iii) A × B (cross product) (CO2)

Q3. (2X10=20 Marks)

a) Explain the DDA algorithm for line drawing with a step-by-step example. (CO3)

b) Describe Bresenham's Line Drawing Algorithm and its advantages over DDA. (CO3)

c) Explain the Midpoint Circle Drawing algorithm with example steps. (CO3)

Q4. (2X10=20 Marks)

a) Define and explain Translation, Rotation, and Scaling in 2D with matrices. (CO4)
b) What is Reflection? Provide transformation matrix and an example. (CO4)
c) Derive the matrix for Shearing transformation and demonstrate with a sample object. (CO4)

Q5. (2X10=20 Marks)

a) Define Animation and explain the basic principles of animation. (CO5)
b) Discuss the differences between 2D and 3D animation with examples. (CO5)
c) Describe different types of animation techniques with suitable examples. (CO5)