UNDERGRADUATE SIXTH SEMESTER (PROGRAMME) EXAMINATIONS, 2022

Subject: Mathematics **Course ID: 62110**

Course Code: SP/MTH/604/SEC-4 **Course Title: Computer Graphics**

Time: 2 hour **Full Marks: 40**

The figures in the margin indicate full marks

Notations and symbols have their usual meaning

1. Answer *any five from* the following questions: **(2 ×5=10)**

a) Define Computer graphics?

b) What are input and output devices in computer graphics?

c) Give matrix representation of 2D rotation.

d) What is aspect ratio in display?

e) What are the advantages of using LCD monitor than to use CRT monitors?

f) Define pixel and resolution.

g) Define clipping?

h) What is the main difference between random and raster scan?

2. Answer *any four from* the following questions: **(5×4=20)**

a) Write down the applications of Computer graphics. 5

b) A straight line joining the origin and the point (4, 3) is rotated counterclockwise by an angle of 45^0. Find the rotation matrix and the resultant point. (3+2)

c) What is 4 connected region? Write down the boundary fill algorithm. (1+4=5)

d) Write midpoint circle generation algorithm. 5

e) Define linear transformation. Write the procedure to fill polygon using Flood fill. (1+4=5)

f) Explain DDA line drawing algorithm with an example. 5

3. Answer *any one* of the following questions: **(1× 10) =10**

a) Explain the working principle of a color CRT monitor using:

I. Beam penetration method

II. Shadow-Mask method. (5+5=10)

b) Develop Cohen-Sutherland line clipping algorithm. 10

***